



HHS Public Access

Author manuscript

Drug Alcohol Depend. Author manuscript; available in PMC 2024 April 01.

Published in final edited form as:

Drug Alcohol Depend. 2023 April 01; 245: 109807. doi:10.1016/j.drugalcdep.2023.109807.

Trends in stigmatizing language about addiction: A longitudinal analysis of multiple public communication channels

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Abstract

Introduction: Stigma associated with substance use and addiction is a major barrier to overdose prevention. Although stigma reduction is a key goal of federal strategies to prevent overdose, there is limited data to assess progress made in reducing use of stigmatizing language about addiction.

Methods: Using language guidelines published by the federal National Institute on Drug Abuse (NIDA), we examined trends in use of stigmatizing terms about addiction across four popular public communication modalities: news articles, blogs, Twitter, and Reddit. We calculate percent changes in the rates of articles/posts using stigmatizing terms over a five-year period (2017–2021) by fitting a linear trendline and assess statistically significant trends using the Mann-Kendall test.

Results: The rate of articles containing stigmatizing language decreased over the past five years for news articles (–68.2 %, $p < 0.001$) and blogs (–33.6 %, $p < 0.001$). Among social media platforms, the rate of posts using stigmatizing language increased (Twitter [43.5 %, $p = 0.01$]) or remained stable (Reddit [3.1 %, $p = 0.29$]). In absolute terms, news articles had the highest rate of articles containing stigmatizing terms over the five-year period (324.9 articles per million) compared to 132.3, 18.3, and 138.6 posts per million for blogs, Twitter, and Reddit, respectively.

Conclusions: Use of stigmatizing language about addiction appears to have decreased across more traditional, longer-format communication modalities such as news articles. Additional work is needed to reduce use of stigmatizing language on social media.

Keywords

Stigma; Addiction; Social media; News; Online

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CRediT authorship contribution statement

NM assisted with developing the methodology and led the analysis, data visualization, and writing. CMJ, RN, and NI supervised the research, aided with methodology, and reviewed and edited the manuscript. SAS conceptualized the study, developed the methodology, supervised the research, and led the writing.

Conflict of interest

The authors have no financial disclosures or potential conflicts of interest to declare.

CDC Disclaimer

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

1. Introduction

The drug overdose epidemic continues to be a leading cause of death in the United States, with an estimated 107,000 lives lost to overdose in 2021 (Ahmad et al., 2022). Stigma associated with substance use and addiction is recognized as a major barrier to overdose prevention due to its broad effects on individuals—including reducing health seeking behavior as well as access to treatment, harm reduction, and other support services (Volkow, 2020; Olsen and Sharfstein, 2014). Language used in public forums, by the media, on social media, among policy-makers, and in clinical medicine can perpetuate stigma and are important because they shape how individuals and institutions understand addiction and respond to it (Volkow, 2020). For this reason, the National Institute on Drug Abuse (NIDA), has produced language recommendations aimed at reducing stigmatization when discussing addiction (National Institute on Drug Abuse). For example, rather than using terms such as “addict” or “drug abuser”, person-centered language which emphasizes the medical nature of addiction is recommended, such as “person with opioid addiction.” (National Institute on Drug Abuse) In recent years, there have been broad calls by leading health professionals and public health organizations to decrease the use of stigmatizing language (Volkow, 2020; Olsen and Sharfstein, 2014).

Despite recent calls to use non-stigmatizing language, there have been no large-scale quantitative analyses beyond assessment of newspaper publications to describe trends in language discussing addiction (McGinty et al., 2019). Thus, it remains generally unclear whether progress is being made in reducing stigmatizing language across a wide variety of public communication outlets. Furthermore, substance use is discussed in a wide variety of communication venues, including news media, blogs, social media, and online forums. Consequently, we assessed trends in stigmatizing language across a diverse set of communication settings to provide an assessment of potential progress made in this area.

2. Materials and methods

To quantify changes in stigmatizing language about addiction over time and across a broad array of media, we analyzed language from four different sources: news articles, blogs, Twitter, and Reddit. Trend data across these platforms were analyzed over a five-year period from January 2017 to December 2021.

Articles or posts using stigmatizing language were identified using a Boolean keyword query that assessed the text of each message for harmful language as indicated by NIDA language recommendations (National Institute on Drug Abuse). The Boolean query utilized in this research is presented in the Appendix. Our aim in this study was to focus on drug use disorders and we do not explicitly include keywords for alcohol or tobacco, which may also result in addiction. The count of articles/posts containing a stigmatizing term was calculated for each month over the five-year period for each of the four communication formats. Raw count data from each source was normalized into a rate by dividing by the total number of articles/posts in a given month from each source. Denominator data on the total number of articles/posts from each source was calculated using a Boolean query incorporating a

widely used lexicon of common English words that occur in most articles/posts, such as “and,” “the,” and “of.” (Natural Language Toolkit, 2022) Data from each of these sources were queried using a leading commercial communications platform commonly used for such research, including substance use research, and containing full historical indexing of social media content (Brandwatch; Niederkrotenthaler et al., 2021; Sumner et al., 2022; Pepper et al., 2022). Because there is limited to no geographic tagging on social media and online content, depending on the particular source, it was not possible to restrict media sources to the U.S. only and our results are, rather, applicable to all English language media. While it is impossible to fully capture all media, approximately 535,042 news sites and 2,629,695 blogs with English language content were indexed annually over our study period.

Data were analyzed by plotting the monthly rate of articles/posts using stigmatizing language for each communication source. A linear regression was used to fit a trend line for each data source with corresponding 95 % confidence intervals. The beginning and ending values from this trend line were used to calculate the percent change in stigmatizing articles/posts for each source over the five-year period. Statistically significant trends over time were assessed using the Mann-Kendall test (Hubbard et al., 2013). Statistical significance was set at $p < 0.05$. This project/study uses publicly available data and was determined to not be human subjects research.

3. Results

Fig. 1 displays the time series plots for each media source. News articles and blog posts had an observed decrease in the rate of posts containing stigmatizing language whereas Twitter and Reddit did not. The percent changes over the five year time period in the rates of posts containing stigmatizing language were -68.2% , -33.6% , $+43.5\%$, and $+3.1\%$ for news articles, blogs, Twitter posts, and Reddit posts, respectively. All trends over time were statistically significant except for changes in Reddit posts ($p = 0.29$). In absolute terms, news articles had the highest rates of articles containing stigmatizing terms, with an average of 324.9 articles per million over the five-year period using stigmatizing language about addiction. Comparatively, the average number of posts per million using stigmatizing language was 132.3, 18.3, and 138.6 for blogs, Twitter posts, and Reddit posts respectively.

4. Discussion

In this study we identified statistically significant decreases over time in the use of stigmatizing language about addiction in news articles and blog posts. Stigmatizing language on the social media platforms Twitter and Reddit did not improve. These findings offer the first assessment of addiction-related language across multiple popular communication modalities.

Interestingly, decreases in stigmatizing language were observed for news articles and blog posts, which are more traditional, long-form, media formats. The decrease in stigmatizing language among these media formats may be a result of the relative ease of disseminating language recommendations among a more focused group of individuals, such as news reporters and professional communicators. Formal news organizations may also

implement and enforce language policies that strive to reduce stigma (Recommendations for Reporting on Suicide; Bessette et al., 2022). Indeed, efforts to reduce stigmatizing language around suicide have historically focused on educating news organizations; addressing stigmatizing suicide-related content in social media environments has been more difficult (Recommendations for Reporting on Suicide; Sumner et al., 2020).

For the social media platforms we studied, we noted stable or increasing use of stigmatizing language. Most content on Twitter is generated by the general public, where knowledge of best practices in addiction-related language may be more limited than among news organizations (Bessette et al., 2022). Although the absolute rate of Twitter posts using stigmatizing language was less than that of news or blog articles, this is likely a reflection of stringent character limit on Twitter as longer format communications have more words in total among which a stigmatizing phrase can be used. Interestingly, Twitter doubled its permitted character length in November 2017; while there is insufficient data to fully evaluate the impact of this change on the trends observed, it is plausible that increasing the permitted character count increased the probability that a given message contained a harmful term. Twitter, as a broad social media platform with a general audience, is perhaps the best proxy among our data sources for general public discourse. This suggests, unfortunately, that much additional work remains in educating the public about reducing stigmatizing language. Reddit is a social media platform centered on topic-specific online forums and hosts the largest substance use forums globally (Wright et al., 2021). In these forums, individuals who use substances anonymously and candidly discuss drug-related practices and concerns. Our results suggest that use of stigmatizing language has not improved on social media platforms as compared to more traditional communication formats. Given the wide reach and centrality of social media in public communication, these findings further underscore the need for robust efforts to address awareness of stigmatizing language and best practices when speaking about addiction among the general population along with continued education of journalistic organizations.

There are important limitations of this research. Due to complexities of analyzing natural language, it is likely that not all instances of stigmatizing language were captured. Nonetheless, we relied on clear and widely agreed upon language recommendations published by NIDA and our study provides reasonable estimates of trends in the use of such language. Furthermore, while our study is the first to analyze trends across a diverse array of media sources, including novel social media sources, there are many other social media platforms that could not be analyzed due to lack of publicly accessible data. Future research might investigate the nature of stigmatizing language in other media types and data sources as well as better explore what types of media outlets or social media accounts are most commonly using stigmatizing language; this information could aid in better targeting educational efforts. Additionally, it is possible that some use of stigmatizing terms occurred in the context of educational posts or those attempting to correct use of harmful language. We conducted a sensitivity analysis qualitatively reviewing 500 randomly sampled posts; no posts of an educational nature were detected and such positive educational content appears to be rare in relation to negative usage. Future work could also include isolating the most commonly used and problematic terms utilized. While this is beyond the scope of this particular study, our manual qualitative review of a limited number of posts suggests that

certain terms, such as “drug addict”, are particularly prevalent and thus there may be benefit in more focused educational efforts around specific terms. Furthermore, this study used a binary classification of whether stigmatizing language was present or not, future work might also examine the frequency of stigmatizing term usage and explore other potential indicators of severity. As noted above, our study does not focus explicitly on alcohol or tobacco, which limits generalizability to these substances.

Although our keyword query inherently included many drug terms, we also conducted a sensitivity analysis in which we created an additional denominator consisting essentially of the substance terms in the original query. Findings from this alternate way to normalize the data revealed large and statistically significant decreases in stigmatizing language in news articles over time (−50.5 %) and increases in stigmatizing language in Twitter posts (102.3 %). This is consistent with trends in these communication modalities observed from both the raw counts as well as rates normalized for all articles/posts. When normalizing by drug terms in our sensitivity analysis, blog posts showed a slight increase of 20.3 % and Reddit posts a slight decrease of −29.3 %. Further research into the nuances of these particular communication modalities is an important aspect of future work.

In general, it is challenging to understand the particular impact of specific efforts to address stigmatizing language as coordinated efforts to promote safe language have generally not occurred at the same scale and degree of formalization as those focused on suicide (Recommendations for Reporting on Suicide). Researchers and clinicians have been raising awareness with publications about stigmatizing language related to addiction for several years (National Academies of Sciences, 2016) and in January of 2017 the Executive Office of the President issued a memorandum to federal agencies directing the use of certain language (Botticelli MP. Executive Office of the President, 2017). NIDA’s guidelines represent an increased formalization of this work and expanded efforts to reach broader audiences, yet much work remains to influence public language use. Lastly, it is important to acknowledge that there is a clinical distinction between substance use and addiction and further work to understand language use around discrete aspects and stages of substance use is generally needed.

5. Conclusion

This paper offers the first large-scale, longitudinal analysis of trends in addiction-related stigmatizing language across multiple media platforms and informs the public on the progress made in reducing the use of such language. Considerable work remains in educating public audiences about stigmatizing language and reducing such language is an ongoing process which should incorporate perspectives and preferences from persons with lived experience as language use continues to evolve. Drug overdose continues to present one of the largest health challenges of the current era and continued efforts to address stigma are an important component of public health strategies to address the overdose crisis.

Appendix

Boolean keyword query identifying stigmatizing language about addiction:

“drug addict” OR “drug abuser” OR “substance abuser” OR “drug user” OR “substance user” OR “addicted baby” OR “addicted babies” OR “drug habit” OR ((habit OR addict OR junkie OR abuser OR abuse) NEAR/2 (opioid OR opioids OR codeine OR fentanyl OR carfentanil OR oxycodone OR oxy OR roxy OR percocet OR oxycontin OR hydrocodone OR vicodin OR hydromorphone OR dilaudid OR morphine OR heroin OR cannabis OR marijuana OR cocaine OR coke OR crack OR methamphetamine OR MDMA OR ecstasy OR amphetamine OR meth OR buprenorphine OR bupe OR suboxone OR naltrexone OR vivitrol OR methadone OR benzodiazepine OR benzo OR xanax OR valium OR klonopin OR alprazolam OR diazepam OR clonazepam)).

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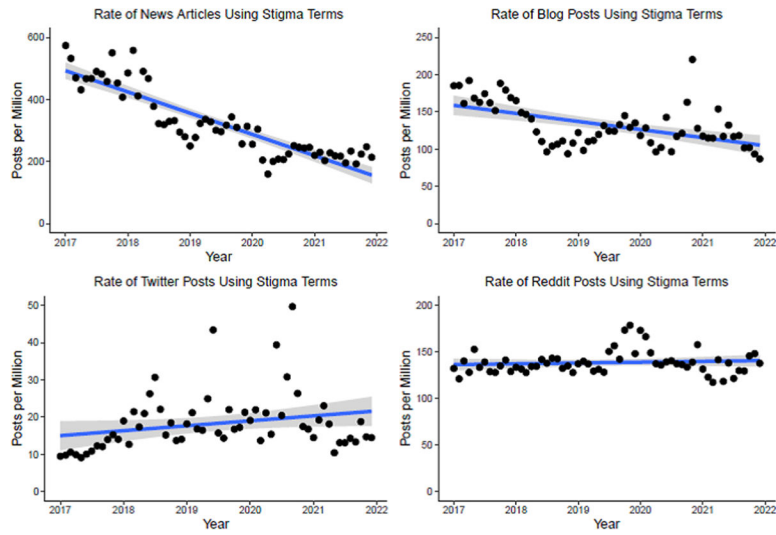


Fig. 1. Longitudinal Trends in the Rate of Posts from each Media Source Using Stigmatizing Language About Addiction. Note: Trend line and 95 % confidence interval generated from a linear regression model.