

“Trying to Avoid Fentanyl and Other Dangerous Fakes”: A Thematic Analysis of Risk-Mitigating Strategies in Opioid Reddit Posts

Jennifer Nguyen

Mercer University College of Pharmacy <https://orcid.org/0000-0001-5755-5814>

Lauren R. Gilbert (✉ lrgilbe2@Central.UH.EDU)

University of North Carolina at Charlotte <https://orcid.org/0000-0003-3365-6797>

George Shaw

University of North Carolina at Charlotte

Research

Keywords: social media, opioids, risk mitigation, qualitative analysis, thematic analysis

Posted Date: October 5th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-942178/v1>

License:  This work is licensed under a Creative Commons Attribution 4.0 International License. [Read Full License](#)

Abstract

Background: The opioid crisis has fuelled dramatic increases in fatal drug overdoses, with illicitly manufactured fentanyl and fentanyl analogues driving the opioid-related overdose death rates among all groups. One way to address these overdose deaths is through increasing public awareness about opioid overdoses and encouraging people who use drugs to make safe choices about opioids. The ease, convenience, and privacy of social media sites provide an inside look into the world of opioid users. This study seeks to understand the nature and significance of Reddit discussions regarding opioid overdoses and safe choices.

Methods: We systematically searched Reddit during the month of August (2019). We collected 4,844 posts, across 25 distinct r/opiates subreddit forums using the search terms “opioids,” “drugs,” and “fentanyl”. We then used qualitative thematic analysis methods to code 49 unique original posts.

Results: The posts from these Reddit discussions provide insight into this online opioid community and how they are sharing and normalizing risk-mitigating strategies to avoid opioid-related overdoses through (1) recognizing the dangers and avoiding fentanyl; (2) knowing the signs and symptoms of opioid overdoses; and (3) having and using naloxone to treat opioid overdoses.

Conclusions: These informal and social interactions provide insight into the complexity the opioid epidemic crisis and can inform future strategies and interventions to address the opioid crisis.

Background

National trend data indicate that more lives have been lost due to opioid overdoses than individuals that have died in armed conflict (e.g. wars) since World War II (1). Opioid misuse has always been a concern, but the increase pressure and marketing from pharmaceutical companies resulted with over 10 million people misusing prescription opioids in 2018 (2). These high rates of misuse, abuse, and overdose led to the federal government declaring the national opioid crisis a public health emergency. While mortality attributed to opioid overdose affects nearly all age groups, the Substance Abuse and Mental Health Services Administration (SAMHSA) data indicate that opioid misuse is highest in individuals in their early to late 20's (3).

As the opioid epidemic continues, there are three distinct waves in the rises of opioid death. The current third wave began in 2013 and is attributed to significant increases in overdose deaths involving synthetic opioids, particularly those with fentanyl. Opioid-related overdose death rates, especially those associated with illicitly manufactured fentanyl and fentanyl analogs, have been rapidly increasing among all age groups (4). There has also been a rising trend of polysubstance use related to overdose deaths involving synthetic products in combination with other drugs, such as heroin, benzodiazepines, methamphetamine, and cocaine (5, 6).

One of the Centers' for Disease Control and Prevention (CDC) strategies to combat the opioid overdose epidemic includes increasing public awareness about opioid overdoses and to make safe choices about opioids (3). Another key strategy to address opioid-related overdoses is the distribution of naloxone. The availability of naloxone, an opioid antagonist which rapidly reverses the effects of an opioid overdose, is a first line of defense in countering the incidence of opioid-related overdose deaths (7). These strategies recognize that people who use drugs can be informed and encouraged to do so in safer ways to prevent opioid overdoses and deaths.

The popularity and extensive use of social media by many individuals has expanded in the last decade with 90% of adults between the ages of 18 and 29 reported using at least one social media site (8). With its relative ease, convenience, and privacy, social media is an ideal platform for individuals to gather and discuss topics related to opioids. Online data collection can facilitate access to hard-to-reach groups that may be marginalized from research, such as current opioid misusers (9). Reddit is an online social media platform where millions of people from around the world post, vote, and comment in communities organized around their interests. Reported Reddit users (“Redditors”) are young, with 22% of adult users between 18 and 29 years old (10). Reddit allows users to post freely with more anonymity. Reddit posts are unique in that there is no limit to the length of posts, information is moderated through readers' voting, and information can be posted without verification. Users can post within “subreddits” on various topics, and create new posts, or respond to the posts of others to create discussions. Redditors are allowed to anonymously post and comment in a variety of subtopics with no character limits in self-moderated discussions (11, 12). While these conversations are occurring on Reddit, these posts do allow for more opening sharing than what is observed through other less anonymous social media platforms, which is less anonymous.

Previous research has supported the promise of Reddit as an effective platform for health promotion (13, 14). Reddit posts can be a source of lay information regarding opioids. These platforms also allow for the shaping of social norms among users. This study seeks to understand the nature and significance of Reddit discussions regarding opioid overdoses and safe choices. These informal and social posts provide insight into the complexities and nuances of the opioid epidemic. This work seeks to understand the meanings created by individuals who are using opioids and understanding their world view. Reddit has the potential for designers of health communication, aimed at persuasive opioid messaging, to test their messaging (Silberman & Record, 2021). Additionally, the text mining of Reddit data may better inform providers of health prevention services, community verified alternative addiction treatment (15). This exploratory research examines a large dataset of Redditors comments by computationally collecting and cleaning data and thematically analysing the comments.

Methods

We systematically searched Reddit during the month of August (2019). To collect the data, we used the Reddit API package in R. The search terms “opioids,” “drugs,” and “fentanyl” were used to generate the dataset. These query terms are commonly used as query terms to gather data related to opioids. Additionally, these query terms are representative of the language that is used in the subreddit search (15, 16). From the RedditExtraction package, the function *get_reddit* was performed on the opiates subreddit (*r/opiates*) to extract and compiled the dataset for this analysis. Once we identified our specific online community (subreddit), the query terms were used as part of the *get_reddit* function to find the relevant discussions. The *r/opiates* community has over 82,000 members. In this community, discussions include narcotics of opiates as it relates to harmful reduction to pharmacology. We collected a total of 4,844 posts, across 25 distinct *r/opiates* subreddit discussions. After analyzing the discussions, we selected a representative sample of comments from the discussions to conduct the thematic analysis. Mercer University Institutional Review Board determined that this research was classified as exempt.

We then used manual qualitative thematic analysis methods to examine relevant original posts (17). This analysis was limited to 47 original posts, where the author had specified or implied the use of opioid drug use. Thematic analysis was limited to the original posts, and not the comments made by other users to the original post.

The two of the authors analyzed the original posts as a team following guidelines for thematic analysis, which involves phases of (1) familiarizing one’s self with the data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, and (6) producing a report (18). Using a combination deductive and inductive coding approach, researchers first collaboratively developed a codebook based on current harm reduction strategies utilized in addressing the opioid epidemic. These codes included things such as “naloxone use”, “supervised injection sites”, and “Good Samaritan laws”. Researchers also developed inductive codes directly from the data, instead of using a specific framework or previously developed codes. This thematic analysis allowed preliminary codes to emerge that reflect the experiences of individual Reddit post creators. All codes were discussed between the researchers, and any discrepancies were resolved through in-depth discussions. Utilizing NVivo 11 software (QSR International), the researchers moved from narrow units of analysis (e.g., significant content) to broader units (e.g., themes) that were evident across the posts. Posts could be coded with more than one code. Initial coding was descriptive in nature, with codes such as “recognizing the danger of fentanyl”, “using with others”, and “trusting the source of drugs”. Through the inductive, iterative process of recoding, condensing, and creating new codes, the main themes and associated subthemes were collectively agreed upon by the researchers. The resulting themes are representative of the repeated patterns of meaning in the posts.

Results

The posts from this Reddit thread provides insight into this online opioid community and how they are sharing and normalizing risk-mitigating strategies to avoid opioid-related overdoses through (1) recognizing the dangers and avoiding fentanyl; (2) knowing the signs and symptoms of opioid overdoses; and (3) having and using naloxone to treat opioid overdoses (Fig.1). Each theme and supporting subthemes are examined, with supporting excerpts from the publicly available original posts. These excerpts do not include identifiable information and the formatting of the original posts have not been edited to preserve the intended impact of the post creator.

Figure 1: Resulting major themes of risk-mitigating strategies in Reddit posts

Recognizing the dangers of and avoiding fentanyl

Users in the posts highlight the risks of unknowingly taking fentanyl-laced drugs, with several labelling it “very dangerous”. One participant focuses on how “[Fentanyl is] constantly hidden and mislabeled as other drugs that are **way way less potent**!” (R28). Users in the posts stress how potentially dangerous an overdose from fentanyl can be. “I knew fent presses always have the risk of instant OD even from the smallest amount due to fentanyl and fentalogs [...and] can potentially kill you” (R8). There is a general awareness of how many other drugs may be contaminated with or completely replaced with fentanyl.

Fentanyl discussions also accentuated the pervasiveness of the problem, with some users reporting “the almost complete replacement of heroin with fentanyl” (R32) and “Fentanyl is **everywhere**” (R25). Another participant shares their personal experience with the increasing amount of fentanyl in the local drug supply: “The thing about my town, is no heroin is just heroin. There is fentanyl and carfentanyl lurking everywhere” (R35). “Nowadays (or recently I should say—clean now), all the dope I have gotten my hands on in the last 2 + years has had fentanyl in it” (R31). These excerpts reflect the national trends of increasing synthetic opioids in the current drug supply and contributing to the rising overdose deaths.

Some Reddit posts included information on how to avoid such accidental fentanyl overdoses. Testing the drug for fentanyl is one suggestion: “You cannot shoot your dope and tell if its fent or not by how it feels. The only way to tell is by testing it” (R20). Another suggestion to avoid accidental fentanyl use was to know and trust the source of the drugs. Another user, R30, emphasizes this point: “You can't trust a pill if you can't personally confirm the validity of the source's script” (R30). Users recognize and share their experiences with fentanyl, including ways to make their opioid use safer.

Other posts were focused on asking for advice on how to avoid fentanyl. One post explicitly stated “Trying to avoid fentanyl and other dangerous fakes. Looking for testing tips and experiences from others” (R25). Another post from a chronic pain patient was seeking similar information: “We need your advice: How do we avoid a fentanyl surprise?” (R46). One user stressed that “we want to do it as safely as possible” (R29). These posts simultaneously highlight the awareness that fentanyl is present in other drugs, and that individuals are trying to avoid the dangerous harms associated with fentanyl.

Knowing the signs and symptoms of overdoses

Several individuals mentioned the signs and symptoms of opioid overdoses within the context of sharing their experiences. Some mentioned how they personally were “scared to fall asleep because I thought I'd [overdose] OD” (R8) and “my eyes rolled back in my head and I began to breath irregularly” (R19). Another post describes the frightening encounter with a friend who is experiencing an overdose:

[He] begins to nod off. I immediately become unsure. I have minimal experience with downers, especially opioids. I have consciously seen people on heroin maybe 5 times. He is breathing and I check his heart rate about every minute. I can feel my panic setting in. His breathing stops. I'm desperately trying to lift him up because he is slouched over and I'm trying to convince myself that's why he isn't breathing. [...] He was so pale, and sweaty, and his lips were blue as he sweat. He gurgled as he couldn't breath (R35)

These posts also demonstrate how users will use with other individuals, providing an opportunity to help others if they are overdosing on opioids. One user explained that he has a trusted friend who will watch over him as he used an unknown drug:

He'd constantly ask me “u good?” throughout the duration of my high and that's exactly he should be doing. This friend is also aware of the signs of an opiate overdose and keeps an eye out for any potential signs/symptoms. (R8)

These examples indicate that users not only can identify the signs of an overdose, but also that they recognize the benefits of using with others as a way to diagnose and intervene in potential overdose situations.

Having and using naloxone

Naloxone, an opioid antagonist that can reverse an opioid overdose, was also mentioned in several of the posts. One individual (R8) explicitly mentioned having Narcan (the namebrand naloxone nasal spray) on hand in several situations including when using a drug that may be contaminated with fentanyl: “I'd do it while someone watches me with Narcan” and when he uses a combination of drugs in the presence of another person who has Narcan in case of an overdose: “I never do benzo-opiate mixes without a tripsitter watching closely with Narcan”. This same individual also offers to the same to others: “I told him he should stay so I could watch him with the Narcan” (R8). Others mentioned how paramedics were able to revive a friend who was overdosing with Narcan: “[my friend] really OD'd too, [he] died, the medics came, narcanned him, and brought him back to life” (R19).

However, the limitations of Narcan were also addressed in the posts. One post recognized the life-saving potential of the drug, but also shared concerns of enabling users.

I obviously think it's great that narcan is becoming readily available and I support it 100%, I mean truthfully I don't know how much it really "helps". Yeah I get it if it saves your child's life it's worth it but I'm saying in the grand scheme of this epidemic. I haven't been on heroin lately but when I saw the article about walgreens carrying narcans I actually thought "cool, I can start doing H[eroin] again because I can just get someone to narcan me". And while narcan will save plenty of lives, it also can enable. Again, I support it fully, but I'm open to both sides. (R30)

Other posts highlighted how multiple doses of Narcan may be necessary to reverse an opioid overdose. "Even with the narcan it can still be risky as I've read stories of people ODing off fent and even multiple doses of Narcan didn't stop the OD" (R8). For one individual who saw a friend overdose, "it takes 3 shots of narcan to get him back" (R35). These posts demonstrate how Narcan is seen as useful, while also recognizing the limitations of the use of Narcan for opioid overdose reversals in the context of fentanyl use.

Discussion

Throughout many of the posts in this online community, users shared examples of safer use behaviors when using opioids. Often, the main intention of the post was not to share these risk-mitigating strategies, but rather, the stories and experiences contained examples of safer use behaviors that individuals were already engaging in and utilizing. This analysis highlights several useful insights into the opioid crisis.

Reddit allows individuals to share knowledge regarding opioid use, and provides a forum for the promotion of harm reduction messages. As these individuals are sharing their experiences or giving their opinions, they are helping to shape the social norms of other users. For example, posts that normalizing of having Narcan available for users and when using with others can encourage readers to also carry Narcan as they use. This insight can enhance interventions that are already in place to include social norm intervention messaging. These findings also demonstrate how opioid users are engaging in safer use practices, such as using with others, and having naloxone on hand. While there have been policy-level harm reduction efforts, such as increase access to naloxone through changing legislation and more community-level access, there are more individual-level harm reduction efforts that could also be supported. In the posts analyzed, users shared their personal strategies for safer opioid use as well as information about the dangers of fentanyl.

These posts also demonstrate an uptake of messages regarding the dangers of fentanyl among opioid users. Individuals are taking the public health messages and integrating them into their experiences. These Reddit posts not only address the dangers and pervasiveness of fentanyl but also offer ways for users to make safer choices when using drugs. Individuals shared suggestions such as testing unknown drugs for fentanyl, and having a trusted source from which to acquire their drugs. Several posts inquired about where and how to test for fentanyl. The acceptability and expansion of fentanyl testing kits and strips could be further explored, especially as new regulations have expanded the federal funding for these kits (19). The users in these posts expressed an interest and demand in obtaining these tools as a means to safer drug use.

These findings support the continued use and expansion of harm reduction strategies to address the opioid epidemic. As the number of overdose deaths continues to rise, there is a need for non-judgmental approaches for keeping people who use drugs safe from potential overdose deaths. Current awareness campaigns warning of the dangers of fentanyl in drugs and supporting safer choices about opioids are being shared and normalized by users in these Reddit discussions. These messages are reaching the target populations and should be further explored to determine the impacts on opioid overdoses.

The study aimed at understanding the significance of Reddit to gain insight and understand the opioid epidemic as discussed within this digital space. One limitation of this study is the geo-spatial information to map the locations of these conversations were not analyzed. Additionally, future research using Reddit posts could further explore the interactions of comments and voting on the original posts. Because Reddit is meant to serve as a facilitator to social interactions, this context could further illuminate the social processes occurring in these online communities. It also provides an opportunity to analyze mesoscopic conversations to measure the interactions of users who are in distress with close social networking neighbors in these discussions. Additionally, a more longitudinal examination of the changing posts and conversations of opioids in this subreddit can provide insight into the complexity and changing environments of opioid use.

Conclusion

Reddit posts provide valuable insight into how individuals are sharing and gaining information in the context of the opioid epidemic crisis. These posts suggest that opioid users are aware of the dangers of fentanyl-laced drugs and potential overdoses, but also are engaging in risk-mitigating strategies to avoid overdoses. These conversations and posts can inform current and future strategies and interventions to address the opioid crisis. These discussions allow providers and public health professionals to better understand how individuals who use opioids are experiencing and managing their use, and how to better support prevention and harm reduction approaches.

Abbreviations

Substance Abuse and Mental Health Services Administration (SAMHSA)

Centers for Disease Control and Prevention (CDC)

Overdose (OD)

Declarations

Ethics approval and consent to participate

Mercer University Institutional Review Board determined that this research was classified as exempt.

Consent for publication

Not applicable

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

Funding

The authors do not have any funding to report. No funding was used to support this work.

Authors' contributions

LG, GS, and JN generated the research idea and project. GS obtained the data. LG and JN designed the methodology. LG analyzed the data and was a major contributor in writing the manuscript. All authors read, reviewed, edited, and approved the final manuscript.

Acknowledgements

Not applicable.

References

1. National Academies of Sciences E. Division H, Policy M, on HS B. Abuse C on PM and RS to APO, Phillips JK, Ford MA, et al. Trends in Opioid Use, Harms, and Treatment [Internet]. National Academies Press (US); 2017 [cited 2020 Aug 16]. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK458661/>.
2. HHS AS of P. What is the U.S. Opioid Epidemic? [Internet]. HHS.gov. <https://plus.google.com/+HHS>; 2019 [cited 2020 Aug 16]. Available from: <https://www.hhs.gov/opioids/about-the-epidemic/index.html>.
3. CDC. Understanding the Epidemic | Drug Overdose | CDC Injury Center [Internet]. 2020 [cited 2020 Aug 16]. Available from: <https://www.cdc.gov/drugoverdose/epidemic/index.html>.

4. Abuse NI. on D. Overdose Death Rates [Internet]. National Institute on Drug Abuse. 2021 [cited 2021 Jul 2]. Available from: <https://www.drugabuse.gov/drug-topics/trends-statistics/overdose-death-rates>.
5. Lippold KM. Racial/Ethnic and Age Group Differences in Opioid and Synthetic Opioid–Involved Overdose Deaths Among Adults Aged ≥ 18 Years in Metropolitan Areas – United States, 2015–2017. MMWR Morb Mortal Wkly Rep [Internet]. 2019 [cited 2020 Oct 28];68. Available from: <https://www.cdc.gov/mmwr/volumes/68/wr/mm6843a3.htm>.
6. NIHCM. Synthetic Opioids Driving a Worsening Crisis of Overdose Deaths [Internet]. NIHCM. 2021 [cited 2021 May 27]. Available from: <https://nihcm.org/publications/synthetic-opioids-driving-a-worsening-crisis-of-overdose-deaths>.
7. Graves RL, Andreyeva E, Perrone J, Shofer FS, Merchant RM, Meisel ZF. Naloxone Availability and Pharmacy Staff Knowledge of Standing Order for Naloxone in Pennsylvania Pharmacies. J Addict Med. 2019 Aug;13(4):272–8.
8. Pew Research Center. Demographics of Social Media Users and Adoption in the United States [Internet]. Pew Research Center: Internet, Science & Tech. 2019 [cited 2020 Aug 16]. Available from: <https://www.pewresearch.org/internet/fact-sheet/social-media/>.
9. James N, Busher H. Online Interviewing. SAGE Publications; 2009. 177 p.
10. Clement J. U.S. Reddit reach by age group 2019 [Internet]. Statista. 2020 [cited 2020 Aug 16]. Available from: <https://www.statista.com/statistics/261766/share-of-us-internet-users-who-use-reddit-by-age-group/>.
11. D’Agostino AR, Optican AR, Sowles SJ, Krauss MJ, Escobar Lee K, Cavazos-Rehg PA. Social networking online to recover from opioid use disorder: A study of community interactions. Drug Alcohol Depend. 2017;01:181:5–10.
12. Sowles SJ, Krauss MJ, Gebremedhn L, Cavazos-Rehg PA. “I feel like I’ve hit the bottom and have no idea what to do”: Supportive social networking on Reddit for individuals with a desire to quit cannabis use. Subst Abuse. 2017 Oct;38(4)(2):477–82.
13. Record RA, Silberman WR, Santiago JE, Ham TI, Sought It I, Reddit. Examining Health Information Engagement Behaviors among Reddit Users. J Health Commun. 2018 May 4;23(5):470–6.
14. Silberman WR, Record RA. We Post It U, Reddit. Exploring the Potential of Reddit for Health Interventions Targeting College Populations. J Health Commun. 2021 Jul 14;0(0):1–10.
15. Chancellor S, Nitzburg G, Hu A, Zampieri F, De Choudhury M. Discovering Alternative Treatments for Opioid Use Recovery Using Social Media. In: Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems [Internet]. Glasgow Scotland Uk: ACM; 2019 [cited 2021 Sep 9]. p. 1–15. Available from: <https://dl.acm.org/doi/10.1145/3290605.3300354>.
16. Nasralah T, El-Gayar O, Wang Y. What Social Media Can Tell Us About Opioid Addicts: Twitter Data Case Analysis. AMCIS 2019 Proc [Internet]. 2019 Jul 12; Available from: https://aisel.aisnet.org/amcis2019/data_science_analytics_for_decision_support/data_science_analytics_for_decision_support/15.
17. Braun V, Clarke V. Using thematic analysis in psychology. Qual Res Psychol. 2006 Jan 1;3(2):77–101.
18. Chapman A, Hadfield M, Chapman C. Qualitative research in healthcare: an introduction to grounded theory using thematic analysis. J R Coll Physicians Edinb. 2015;45(3):201–5.
19. CDC. Federal Grantees May Now Use Funds to Purchase Fentanyl Test Strips. | CDC Online Newsroom | CDC [Internet]. 2021 [cited 2021 May 28]. Available from: <https://www.cdc.gov/media/releases/2021/p0407-Fentanyl-Test-Strips.html>.

Figures

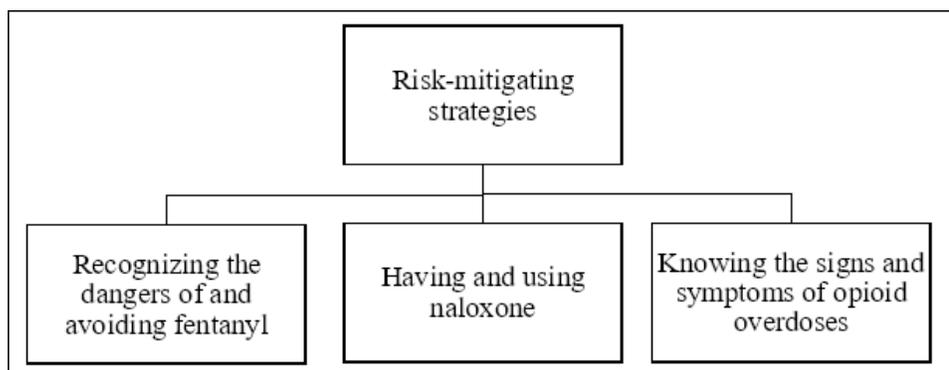


Figure 1

Resulting major themes of risk-mitigating strategies in Reddit posts