

STASH, Vol. 20(6) - Cryptomarkets and social media: What can we learn about opioid-related feelings?

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Among people who use illegal drugs, [one in 10](#) are purchasing drugs from [cryptomarkets](#) - online marketplace platforms for buying and selling illegal goods and services. Although they are [associated with adverse drug events](#), cryptomarkets can be a resource for [researching the current drug market](#), including the latest drug-related terms. This week, STASH reviews a [study by Usha Lokala and colleagues](#) that analyzed cryptomarket listings and social media data to identify opioid-related sentiments and emotions.

What was the research question?

Can cryptomarket listings and social media data be used to identify opioid-related sentiments and emotions?

What did the researchers do?

By analyzing cryptomarket listings, the researchers identified around 120 terms¹ that refer to eight types of opioids: opium, oxycodone, kratom, fentanyl, heroin, synthetic heroin, pharmaceutical fentanyl, and nonpharmaceutical fentanyl. Using the identified terms, the researchers collected 290,458 Reddit posts² and 151,562 Twitter posts with opioid-related content. For each type of opioid, the researchers examined a random [sample](#) of 800 Reddit posts and classified them as expressing positive, neutral, or negative sentiments. The researchers also classified Twitter posts as expressing one of seven emotions: joy, sadness, anger, love, fear, thankfulness, and surprise.

What did they find?

Studying cryptomarket listings and social media data was an effective method for identifying opioid-related sentiments and emotions. Among Reddit posts, the researchers found the highest rate of positive sentiment for pharmaceutical fentanyl, highest rate of neutral sentiment for kratom, and highest rate of

negative sentiment for fentanyl (see Figure). Among Twitter posts, sadness was a top three emotion for all eight types of opioids.

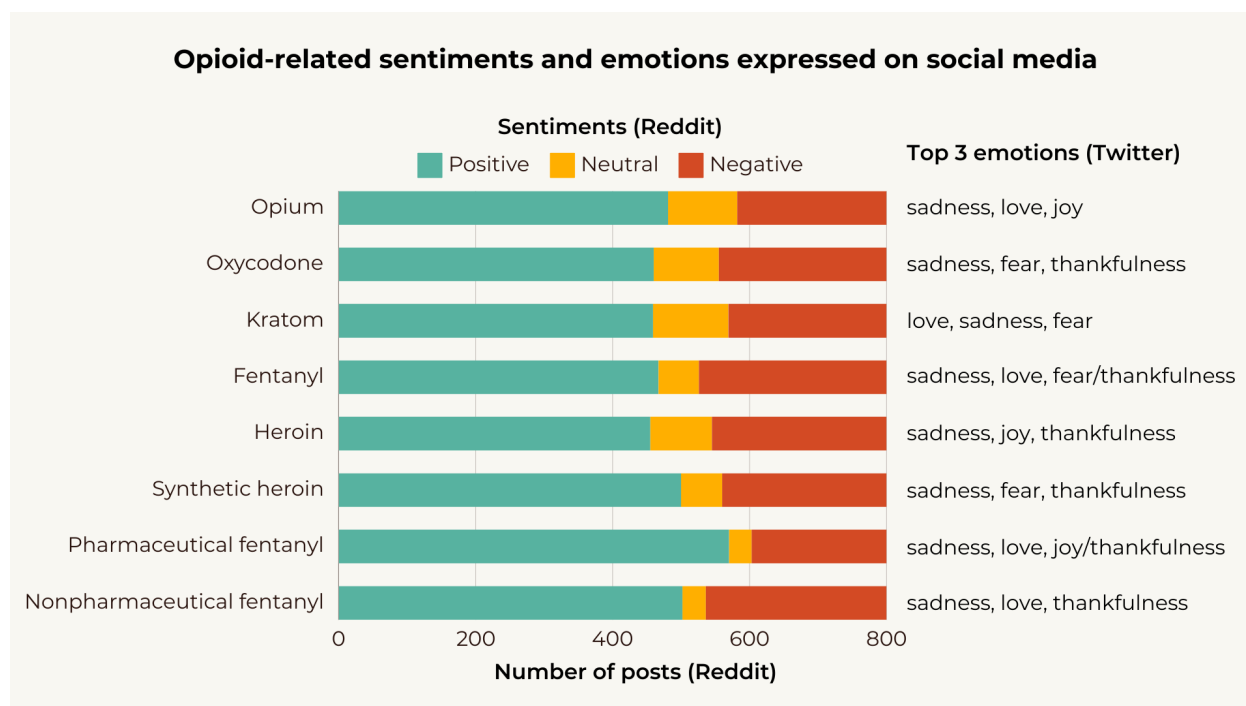


Figure. Opioid-related sentiments and emotions expressed on social media. The researchers used Reddit posts to identify sentiments and Twitter posts to determine the top three emotions. Click image to enlarge.

Why do these findings matter?

As [new opioids are created](#), analyzing cryptomarket listings may help researchers, policymakers, and treatment providers keep up with the latest products and names. Social media posts also provide insight into how people feel about opioids and opioid use, which can inform substance use treatment programs. By better understanding the feelings of people who use opioids, these programs may be able to provide targeted [emotion regulation interventions](#) to reduce opioid misuse.

Every study has limitations. What are the limitations in this study?

The researchers identified Reddit and Twitter posts using [deep learning models](#), which are susceptible to errors. Determining the meaning behind textual interactions can be difficult and the interpreted meaning may differ from the intended meaning. Thus, some posts may have been incorrectly included in the study or misclassified in terms of sentiment or emotion. Also, the study only examined sentiments and emotions expressed in opioid-related posts, not whether opioid use led to these feelings, so we cannot determine [causality](#) between opioids

and sentiments/emotions.

For more information:

If you are worried that you or someone you know is experiencing addiction, the [SAMHSA National Helpline](#) is a free treatment and information service available 24/7. For more details about addiction, visit our [Addiction Resources](#) page.

— Caitlyn Matykiewicz, MPH

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1. Identified terms included slang names, brand names, drug names, street names, marketing names, commonly used names, and abbreviations.
 2. Reddit posts were collected from six subreddits: r/drug nerds, r/research chemicals, r/opiates, r/heroin, r/suboxone, and r/opiates recovery.
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