

# Sentiment Analysis of Social Media Comments on HEALing Communities Study New York Communications Campaign

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## INTRODUCTION

The HEALing Communities Study (HCS) is an NIH-funded multiyear community-based study testing the impact of the Communities that Heal (CTH) intervention on opioid overdose deaths and associated outcomes in 67 highly affected communities in Kentucky, Massachusetts, New York, and Ohio. The goal is to reduce opioid overdose deaths by 40% in 3 years. A core component of the CTH intervention is a series of community-based health multimedia communication campaigns. The first campaign of the series aims to increase demand for, access to, and availability of naloxone, the opioid overdose reversal medication, and adapted to address the effect of COVID-19 on people with opioid use disorder and their family members.

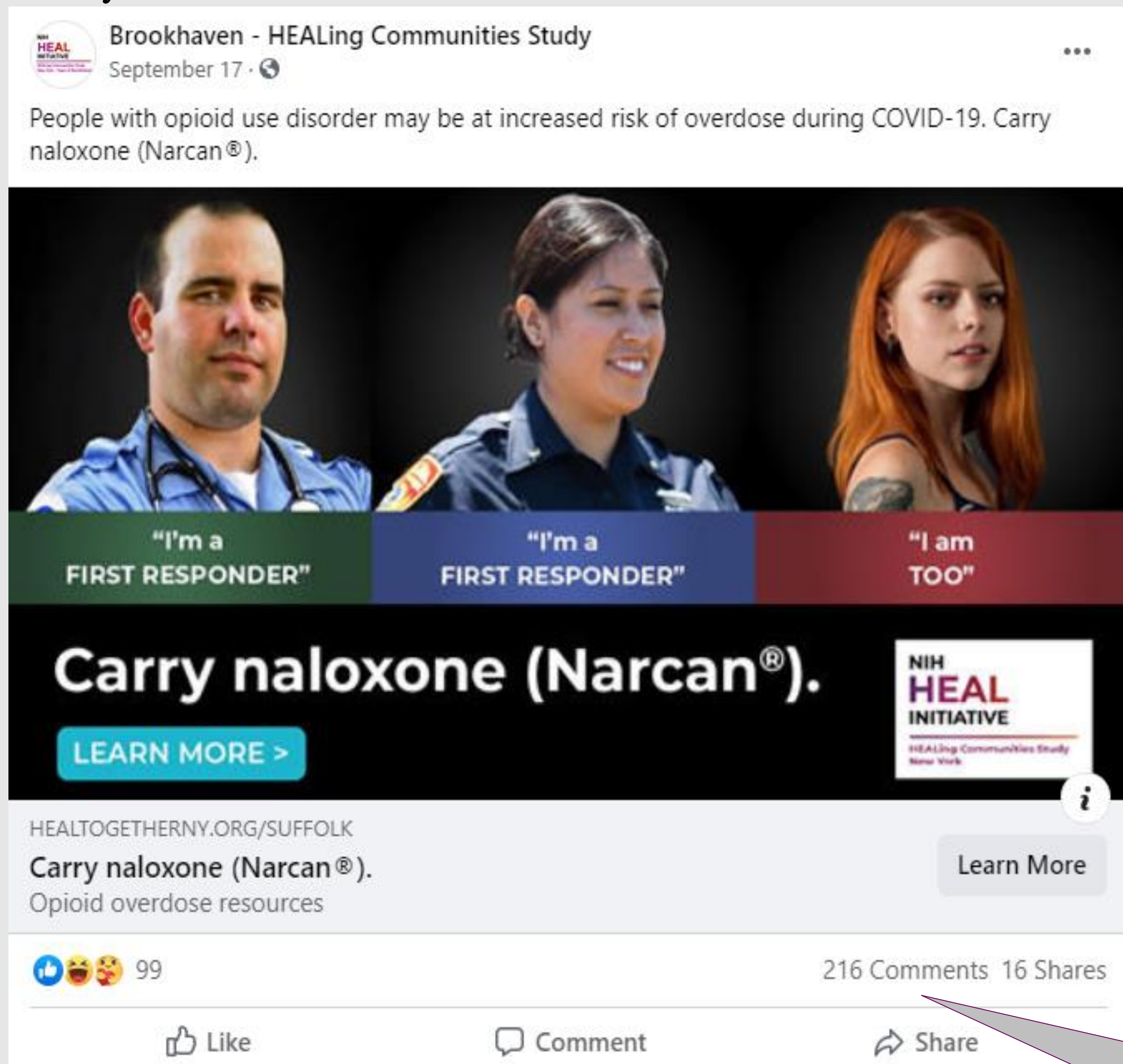


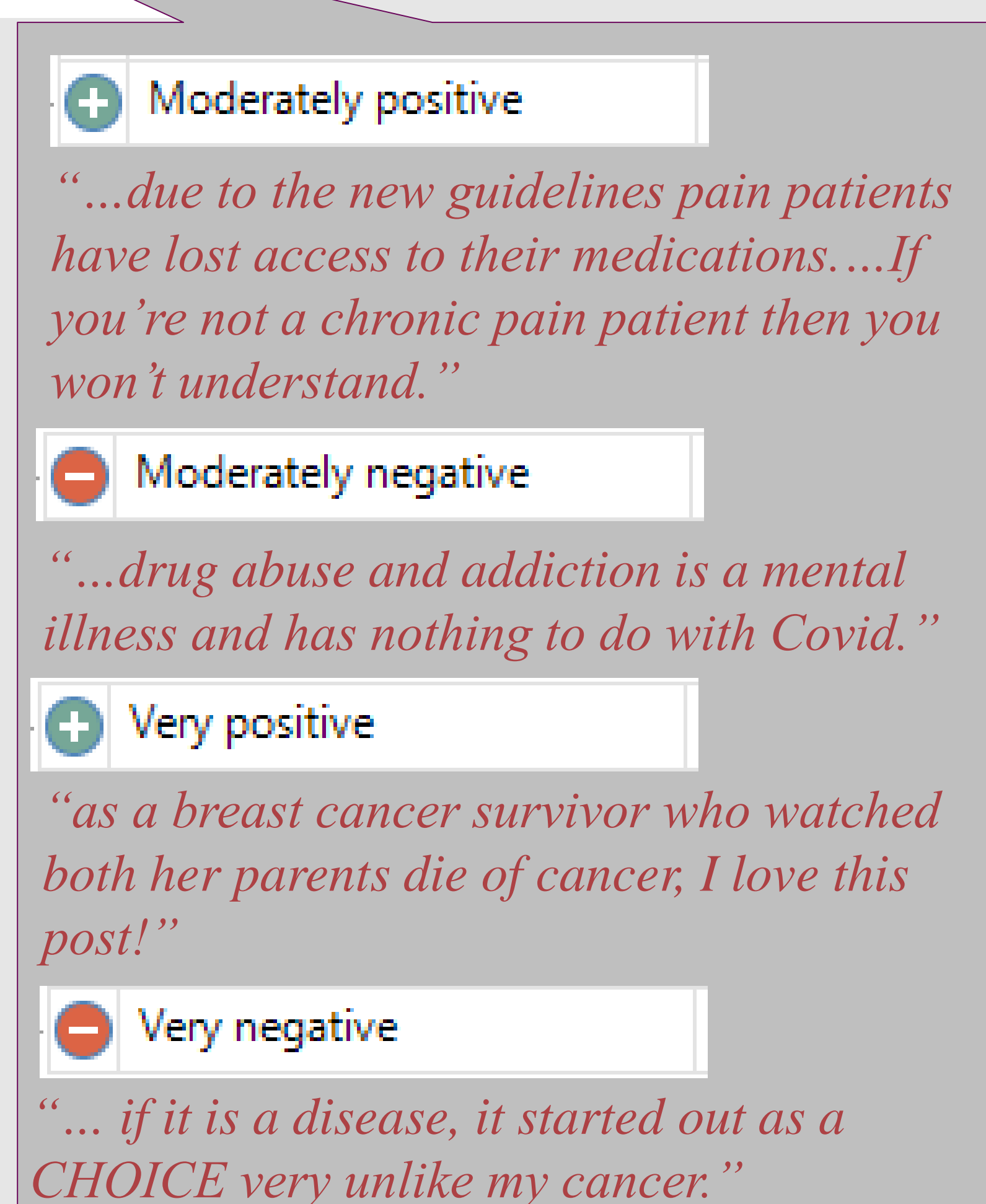
Figure 1. The Brookhaven Township Facebook advertisement

## METHODS

All Facebook comments were exported and organized by date of post. The export included the comment, date, and time of the comment, and any likes or replies to that comment. Profile names were de-identified upon export.

Sentiment analysis was conducted in the qualitative software NVivo 12 utilizing the Auto Code Wizard auto-code functionality. The analysis assessed comments for word sentiment on a scoring system of Very Negative, Moderately Negative, Neutral, Moderately Positive, and Very Positive. Comments with predominantly words that fall within the Neutral range are not coded. Comments that contain both Negative and Positive sentiments were coded as both sentiments, and marked as Mixed.

Figure 2. NVivo 12 Auto-Sentiment Analysis examples of code application to comments



Brookhaven Township (in Suffolk County), one of the 16 New York communities in the study, noticed a high volume of comments on a Facebook campaign post (pictured left, featuring a local first responder). The goal of this analysis is to identify the most prevalent sentiments present in the comments to identify the predominant tone of the discussion, inform future campaign strategy, and serve as a baseline for future inquiry into what we can learn from qualitative social media data.

## RESULTS

Of the 223 comments, there were 85 instances of Very Negative sentiment, 52 Moderately Negative, 48 Moderately Positive, and 43 instances of Very Positive sentiment. 69 instances of Neutral sentiment were detected, and not coded. Of the coded sentiments, there were 74 instances of Mixed sentiment identified (74 comments were coded as both positive and negative to the same degree).

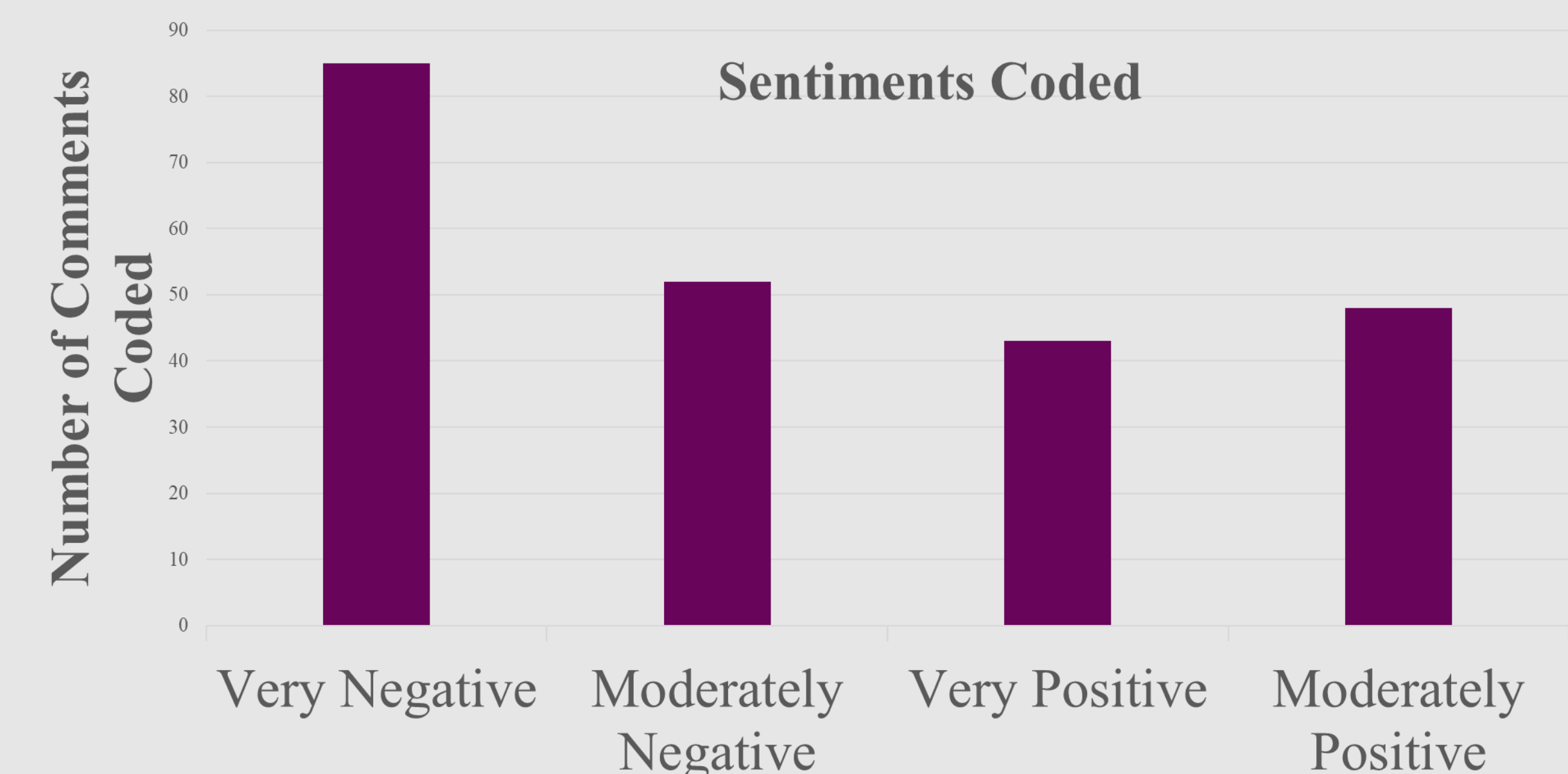
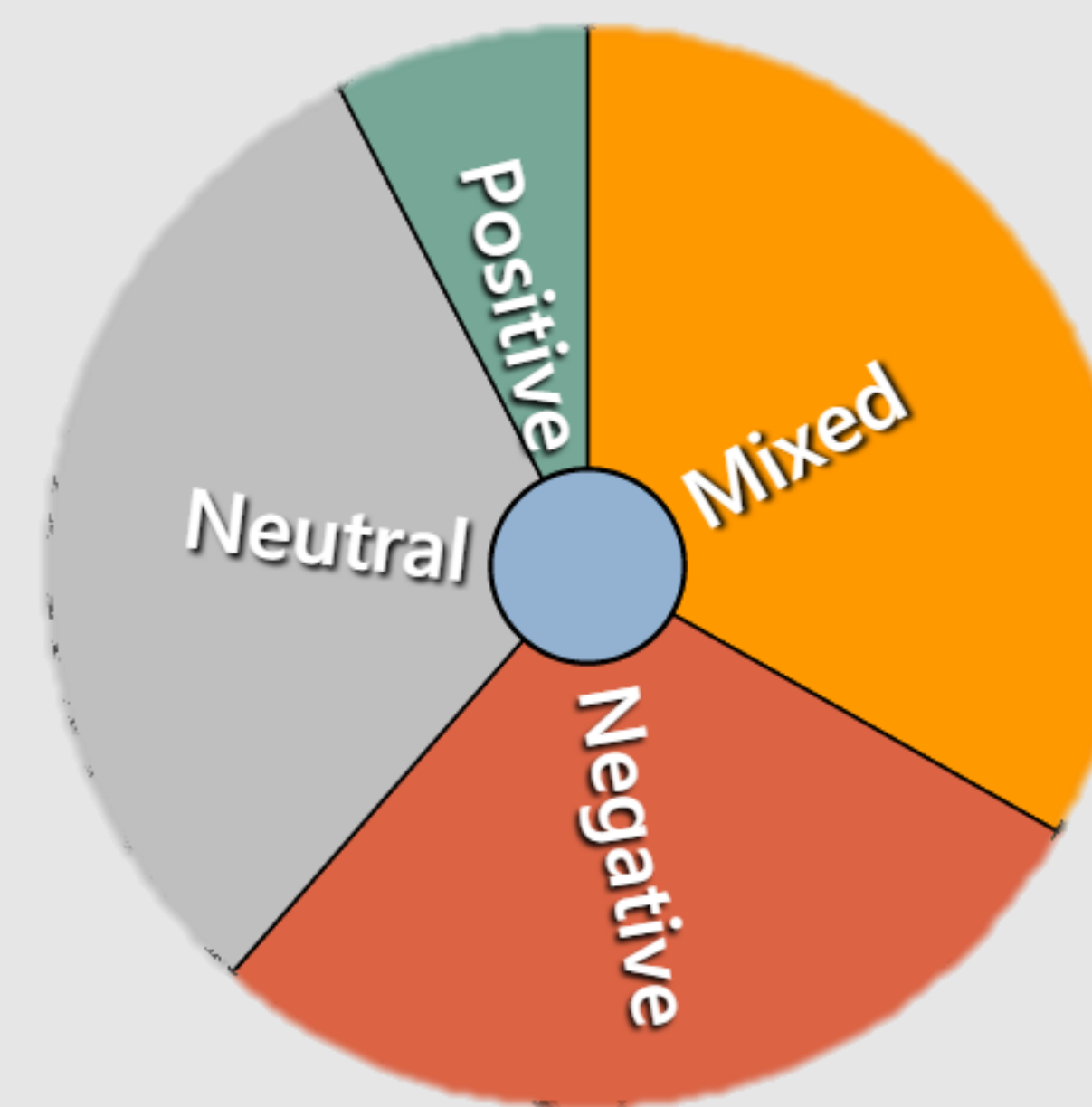


Figure 3 & 4. Sentiment distribution of comments. Figure 3 includes Neutral and Mixed comments. Figure 4 includes charged sentiments only

## DISCUSSION

This analysis will serve as a baseline for further inquiries into social media analytics as the HEALing Communities Study continues in New York. These findings provide a few different insights into avenues for further examination.

The predominance of Very Negative and Moderately Negative comments suggest the presence of stigma towards one or more of the topics presented in the message (naloxone, COVID-19, people with opioid use disorder, first responders). The prevalence of comments identified as Neutral, and not coded, in addition to the high rates of Mixed instances of both Positive and Negative sentiment, call for a content analysis in order to determine the substance of those comments, and in turn shed light on their prevalence.

Limitations of the auto-code sentiment analysis include lack of context recognition, resulting in an inability to recognize double negatives, sarcasm, slang, idioms, or ambiguity. It is recommended that further inquiry into campaign comments be conducted through individual or group qualitative coding and content analysis based on a customized HEALing Communities Study codebook. This method would allow for a thorough analysis of content and themes throughout the comments, answering questions such as what are the objects of stigma (ie: the term “opioid use disorder”, naloxone, addicts), and how relevant were the comments to the content in the campaign. This would in turn inform how to structure future health communications campaigns.

Further opportunities lie in demographic analysis of commenters and associated sentiment or content analysis, and comparison with the demographics of those most heavily impacted by OUD in the community in order to gain a sense of how social ties or peer relations may impact the experience, and ultimately health needs of people with opioid use disorder.

Read more about the HEALing Communities Study at [HealTogetherNY.org](http://HealTogetherNY.org)



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