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## Introduction

In BC, the rates of opioid use and concurrent use of other substances have not decreased despite novel harm reduction interventions such as safe supply. This cross-sectional cohort survey of people who use drugs, focuses on fentanyl use patterns, use of synergistic substances, and risky use patterns to generate valuable insights into the complex dynamics of substance use. The aim of this study is to provide critical evidence to enhance our understanding of fentanyl use behaviour, motivations for use, and its impact on health-related domains among people who use drugs.

## Methods

- The Fentanyl Cohort Study, a cross-sectional and prospective cohort survey conducted in Vancouver, BC, targeting individuals diagnosed with opioid use disorder who used illicit opioids, including fentanyl, in the past six months.
- The survey collected information on substance use patterns and demographics from participants recruited by convenience sampling (n=200), to assess associated risks, understand patient perspectives, and evaluate the healthcare system's response to the opioid crisis.
- Recruitment occurred at the Complex Pain & Addiction Service in Vancouver General Hospital, and the study was funded by the Vancouver Coastal Health Research Institute Grant (F22-01012).
- Data collection used Qualtrics software on tablets, with analysis involving responses from participants recruited until early September 2023. Descriptive statistics and sub-analyses were conducted on quantitative data, and qualitative data underwent thematic analysis.

## Results Summary

- 37.0% of participants prefer fentanyl over other opioids and 33.6% of participants actively look for fentanyl as their drug of choice. 30.2% of participants report co-use of street opioids with stimulants, 21.9% with benzodiazepines, 15.3% with alcohol, and 19.5% with cannabis.
- Higher overdose number was correlated with increased harm reduction practices and vice versa ( $r = 0.13$ ,  $p = 0.049$ ).
- Observing attitudes towards fentanyl use, there were no correlations between overdose numbers and whether individuals like/dislike fentanyl, nor recommend fentanyl to others ( $p > 0.05$ ). 69% of participants reported as 'liking', 24% as 'disliking' fentanyl, while 7% reported 'other' (eg. liking effects but disliking post-use effects). 72% do not recommend fentanyl use, and 12% recommend caution.
- Regarding co-consumption of other substances with fentanyl use, only a significant correlation was found between overdose number and concurrent use of stimulants, where increased stimulant use is correlated with increased overdose number ( $p < 0.005$ ). Additionally, increased likelihood to co-use with stimulants was correlated with decreased naloxone use ( $p < 0.005$ ) and hospital visits during the first overdose ( $p < 0.05$ ).

## Results

### Application of Harm Reduction Practices vs. Lifetime Overdose Number

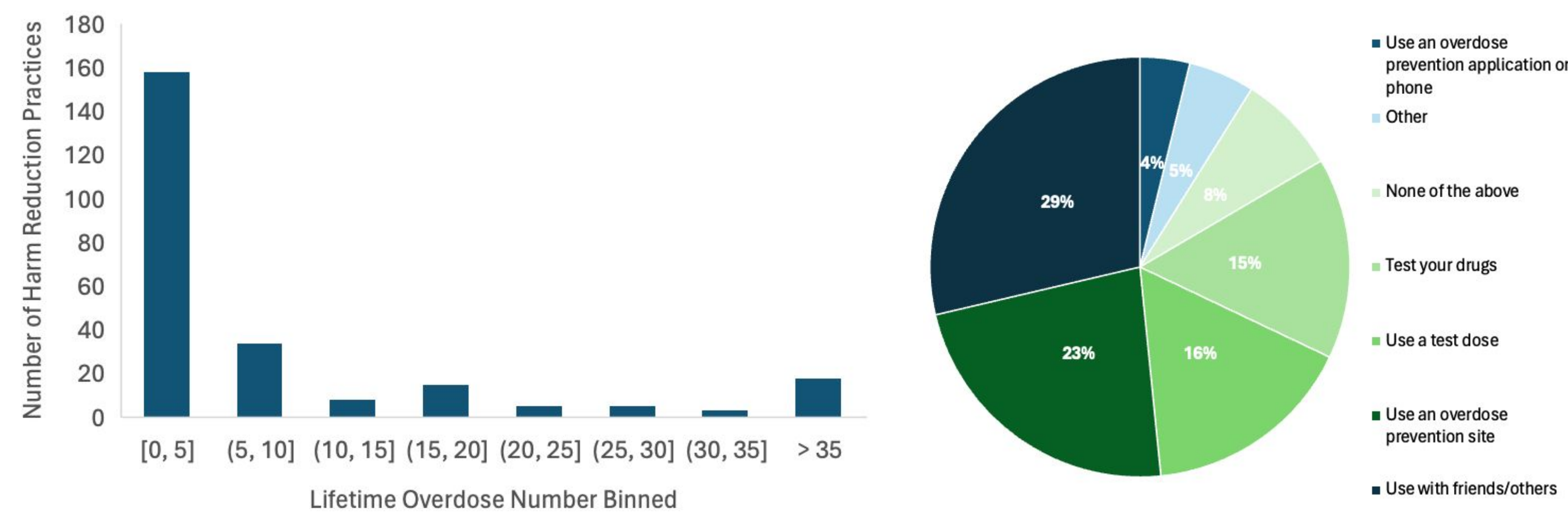


Fig 1. Highest number of harm reduction practices were used in individuals with the lowest overdose numbers.

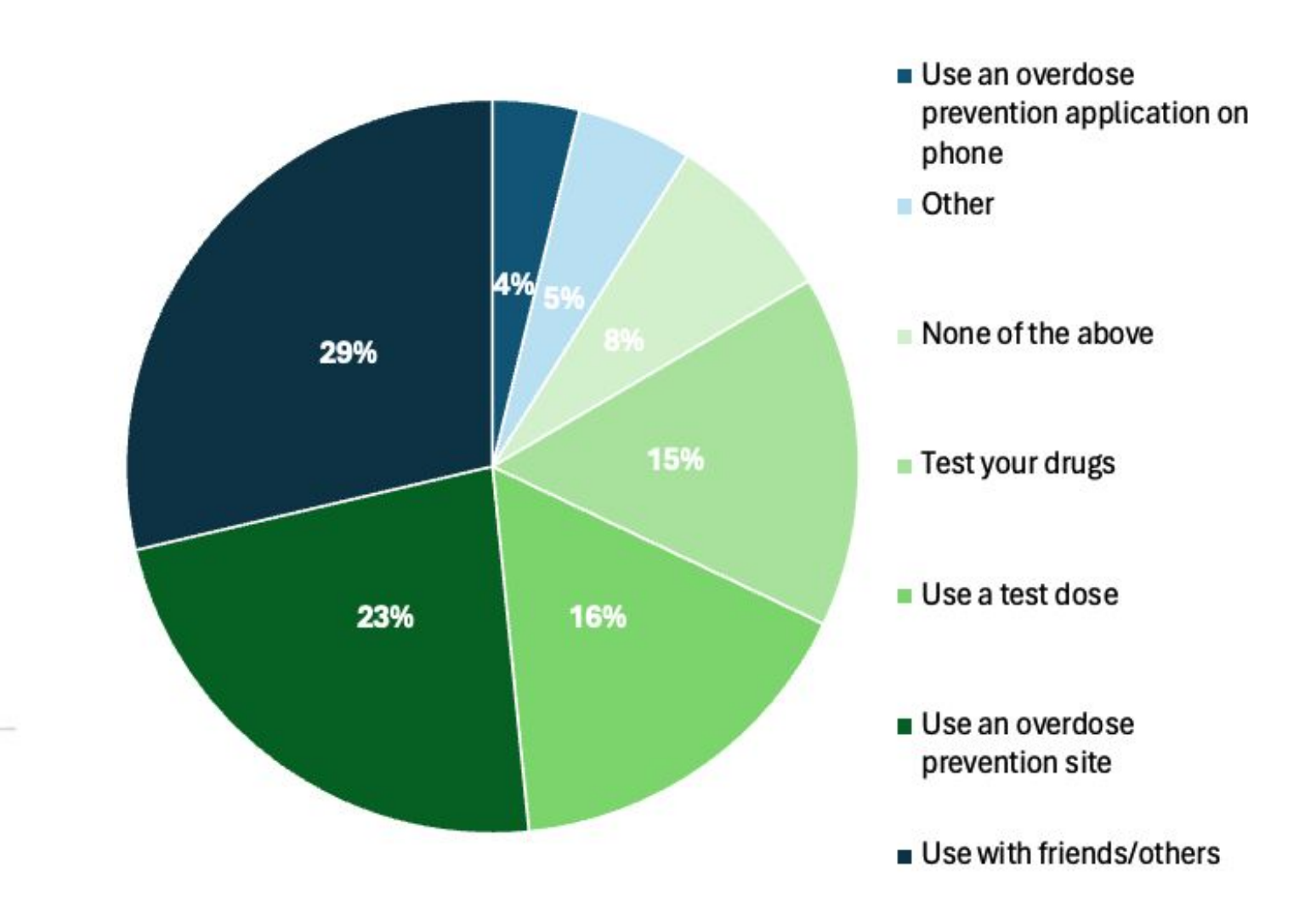


Fig 2. Most participants use an overdose prevention application on their phone and/or overdose prevention site as their most common harm reduction method.

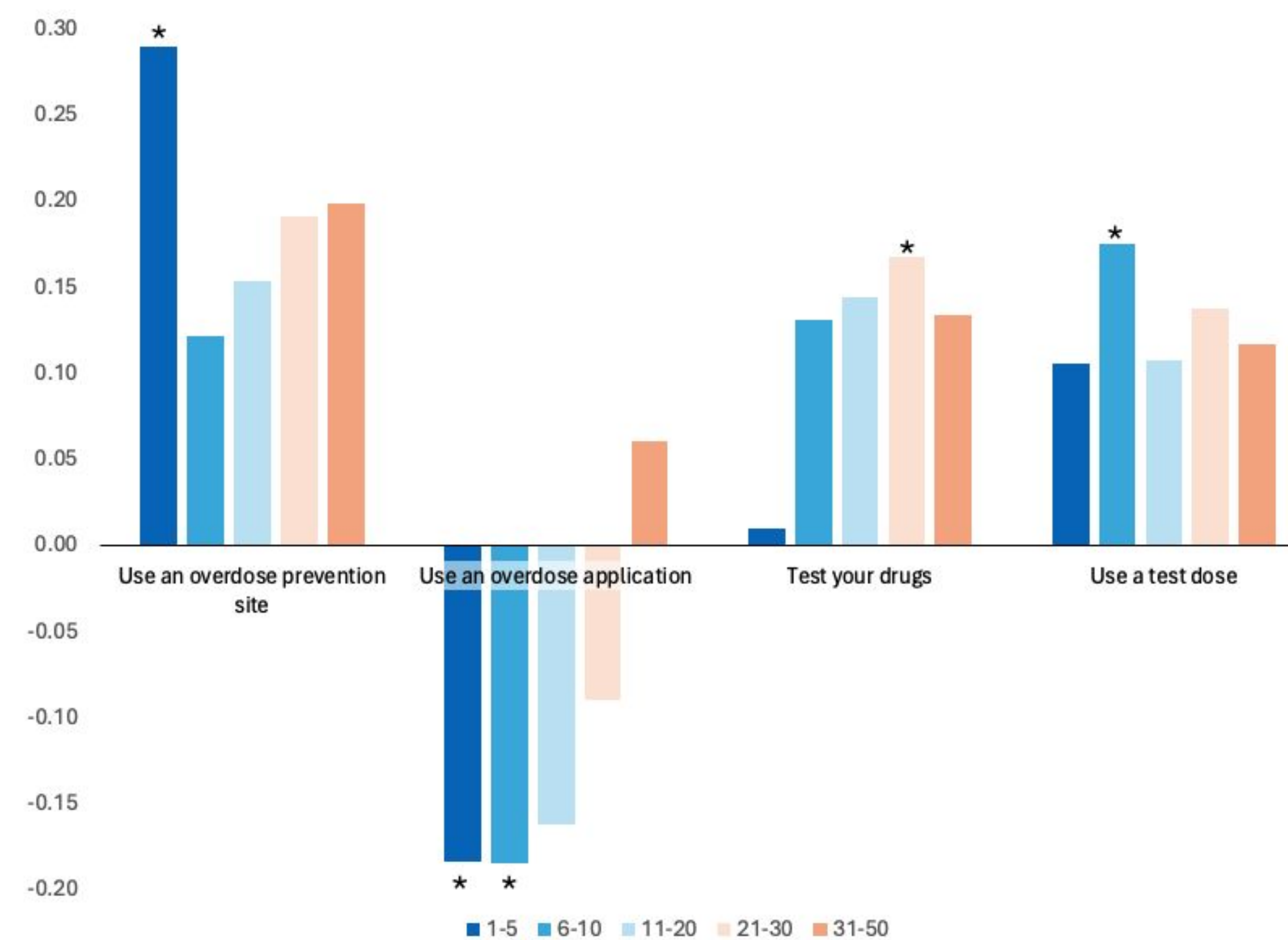


Fig 3. All harm reduction methods positively correlate with overdose numbers, except for using prevention applications on phones. Use of an overdose prevention site is significant for individuals with 1-5 lifetime overdoses, testing drugs is significant for individuals with 21-30 lifetime overdoses, and using a test dose is significant for individuals with 5-10 lifetime overdoses.

### Concurrent Stimulant Use vs. Lifetime Overdose Number

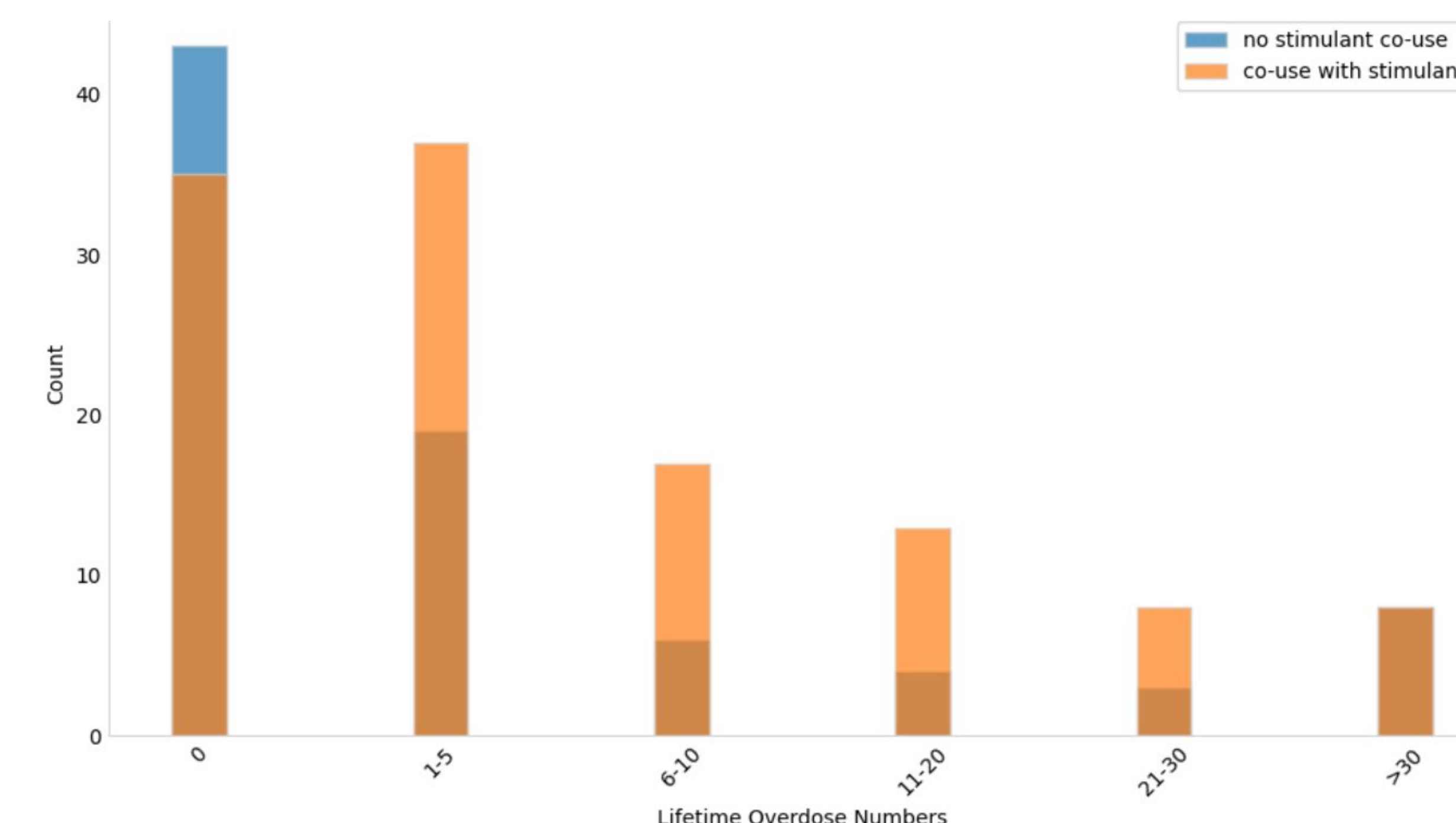


Fig 4. Habitual concurrent use of fentanyl with stimulant drugs (eg. cocaine, methamphetamine) was correlated with overall increased number of overdoses.

### Recommend fentanyl vs. Overdose Number

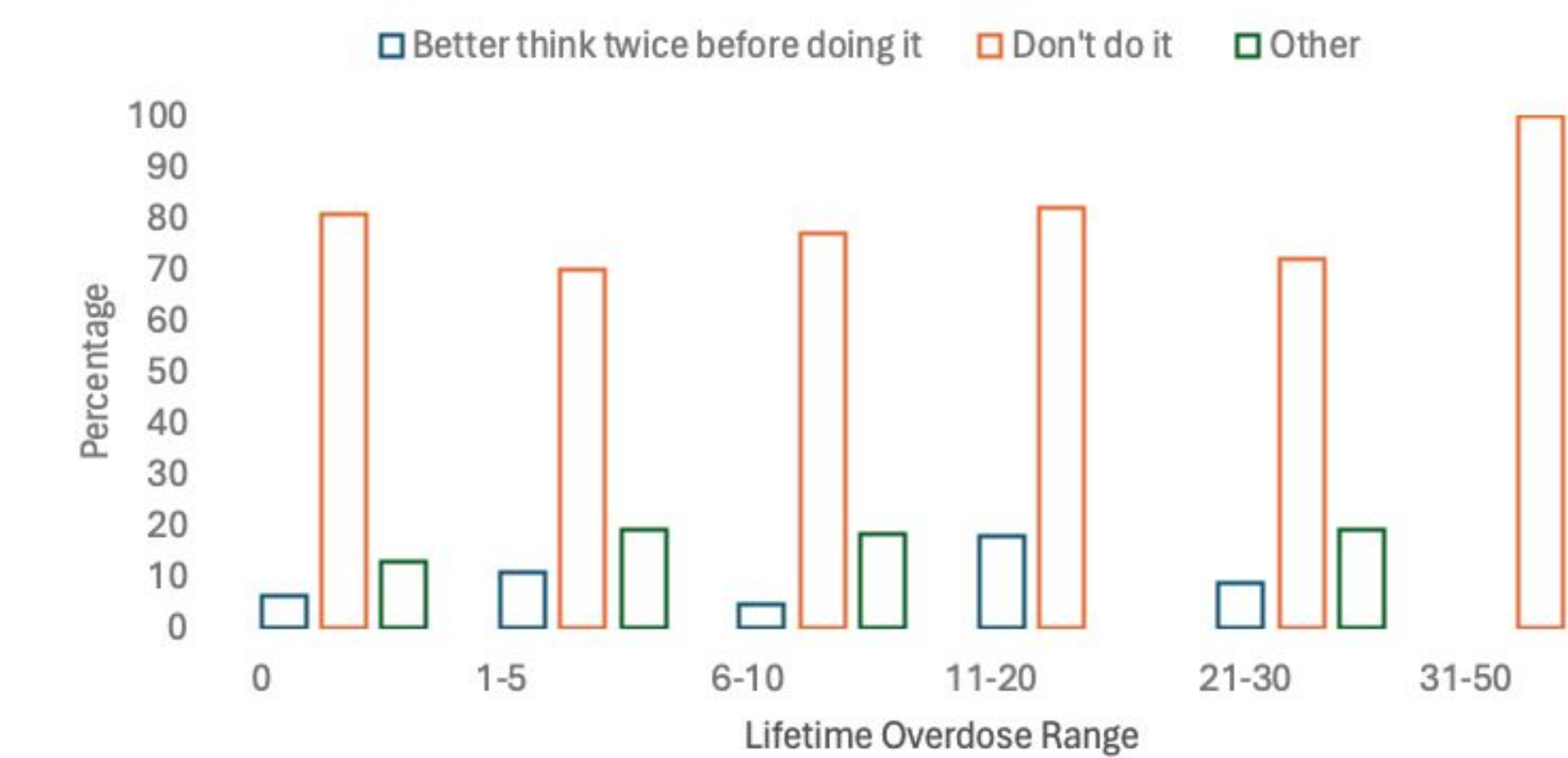


Fig 5. A greater proportion of participants would discourage fentanyl use to others across all lifetime overdose number ranges.

### Like/dislike fentanyl vs. Overdose Number

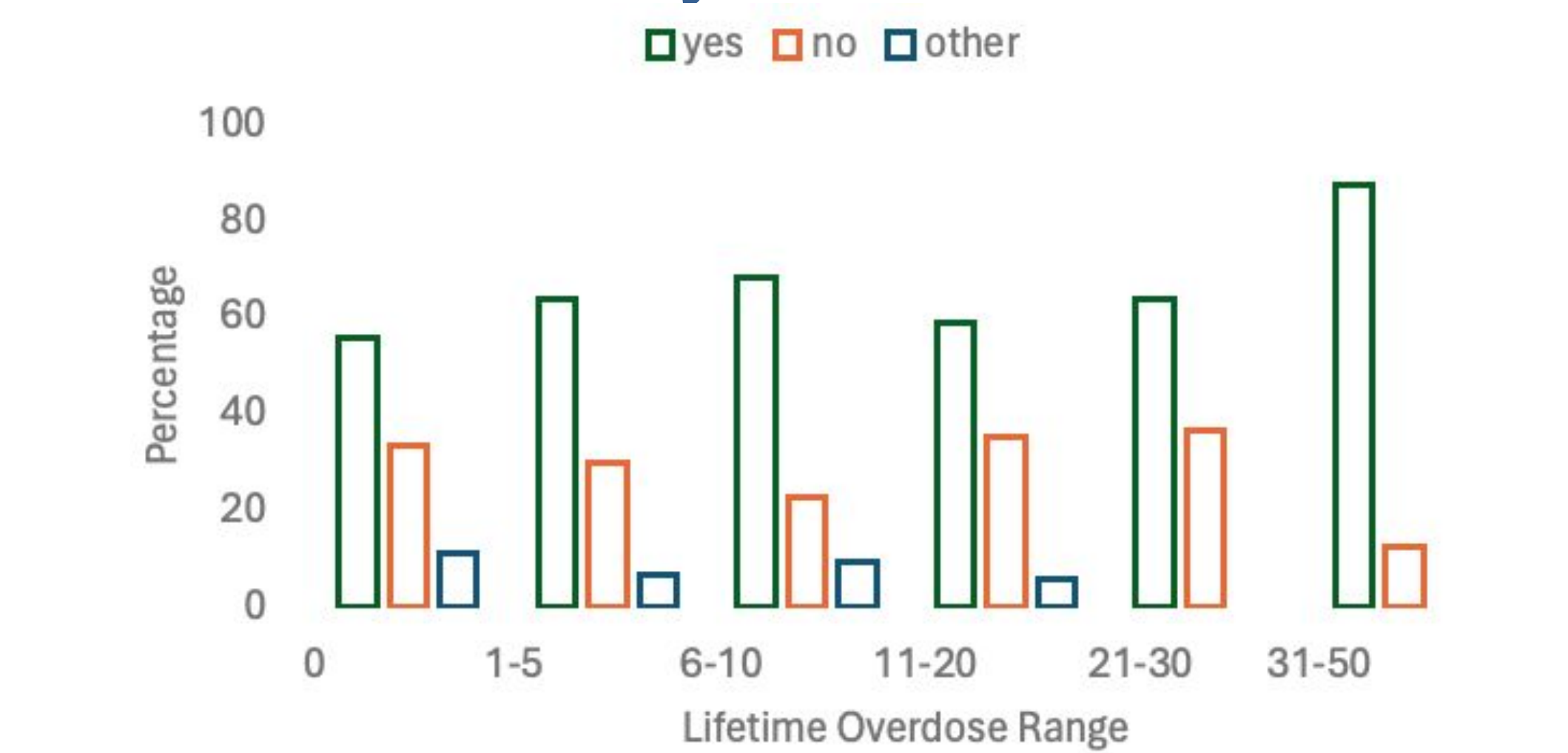


Fig 6. A greater proportion of participants report liking the immediate effects of fentanyl consumption across all lifetime overdose number ranges.

## Discussion & Conclusion

- The observed correlation between increased harm reduction practices and higher overdose numbers may reflect increased awareness of pre-existing higher-risk practices among users. However, if stratified in ranges, users who seek more harm reduction services exhibit the least number of overdoses.
- No correlations were found between attitudes towards fentanyl (like/dislike or recommending to others) and overdose numbers, indicating that attitudes do not impact overdose risk. This could be attributed to physical dependence prevailing over cognitive attitudes, as most respondents refrain from endorsing fentanyl use despite experiencing higher overdose frequency or expressing a preference for its effects.
- Significant correlations were found between concurrent stimulant use and increased overdose numbers, suggesting a 'masking' effect where stimulants obscure typical overdose indicators of opioids such as with fentanyl. Additionally, increased likelihood of stimulant co-use is associated with decreased naloxone use and fewer hospital visits during the first overdose, highlighting a critical gap in harm reduction and medical intervention for this subgroup. Targeted interventions must address the unique challenges in this cohort.