

# Benzodiazepine and opioid co-usage in the US population, 1999–2014: an exploratory analysis

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## Abstract

### Study Objectives

The study objectives were to explore trends in prevalence of use of benzodiazepine receptor modulators and opioids, and nonselective and selective (i.e. Z-drugs) benzodiazepine receptor modulators, in the United States, as well as risk factors for these drug utilization patterns.

### Methods

This was a multiyear, cross-sectional, population-level study, using US health survey data. Data from eight National Health and Nutrition Examination Survey (NHANES) cycles were analyzed, from 1999–2000 until 2013–2014, with each survey cycle containing information on ~10 000 individuals. The main measure was prevalent prescription drug use within 30 days preceding survey administration. Drug usage was objectively confirmed for a large majority of participants through direct inspection of prescription bottles.

### Results

The estimated prevalence of concurrent benzodiazepine receptor modulator and opioid use in the United States was 0.39% in 1999–2000 and 1.36% in 2013–2014, reflecting absolute and relative changes of +0.97% and +249%. The estimated prevalence of nonselective and selective benzodiazepine receptor modulator use steadily rose in the United States from 0.05% in 1999–2000 to 0.47% in 2013–2014, reflecting absolute and relative increases of +0.42% and +840%. Independent risk factors for these two forms of psychoactive medication polypharmacy were identified.

### Conclusions

In this exploratory analysis, concurrent use of benzodiazepine receptor modulators and opioids, and nonselective and selective benzodiazepine receptor modulators, was found to have progressively risen in the United States. The progressive increases in these two forms of psychoactive medication polypharmacy are concerning, given that these drug use patterns are associated with increased risk for serious adverse outcomes.

[benzodiazepines](#), [Z-drugs](#), [opioids](#), [polypharmacy](#), [pharmacoepidemiology](#)

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