

Retrospective analysis of benzodiazepine use in a commercial health plan population: prescribing patterns and socio-demographic factors



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Background

- Benzodiazepines are a class of medications indicated to treat several psychological and physiological conditions, including anxiety, insomnia, and muscle spasms.
- According to a study published in 2019, benzodiazepine use in the outpatient setting doubled from 2003 to 2015.¹ However, a more recent study published in 2021 found a 12% decrease in benzodiazepine prescriptions for men and women between January 2018 and March 2021.²
- Efforts have been made to reduce benzodiazepine prescribing, including the Food and Drug Administration's updated warning for co-prescribing benzodiazepines with opioids and the American Geriatrics Society's initiative to reduce benzodiazepine utilization among older adults.^{3,4}
- Recent studies have also suggested that there is an association between benzodiazepine use and socio-demographic factors including gender, socio-economic status, race, and age.^{2,5,6,7}

Objectives

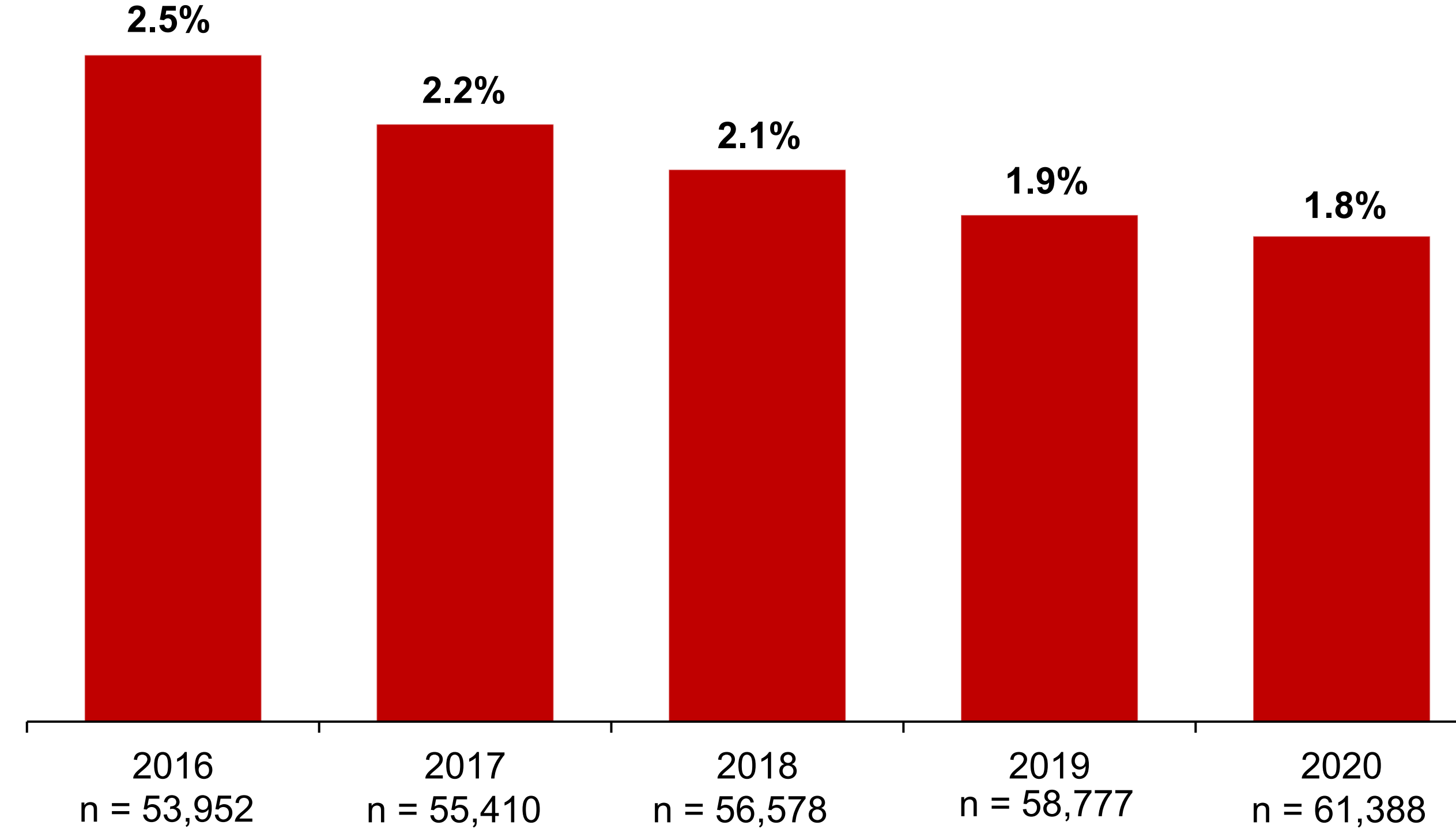
- Evaluate changes in benzodiazepine use between 2016 and 2020.
- Assess the relationship between benzodiazepine use and gender, socio-economic status, race, and age in:
 - Continuously enrolled members
 - Continuously enrolled members at risk for anxiety

Methods

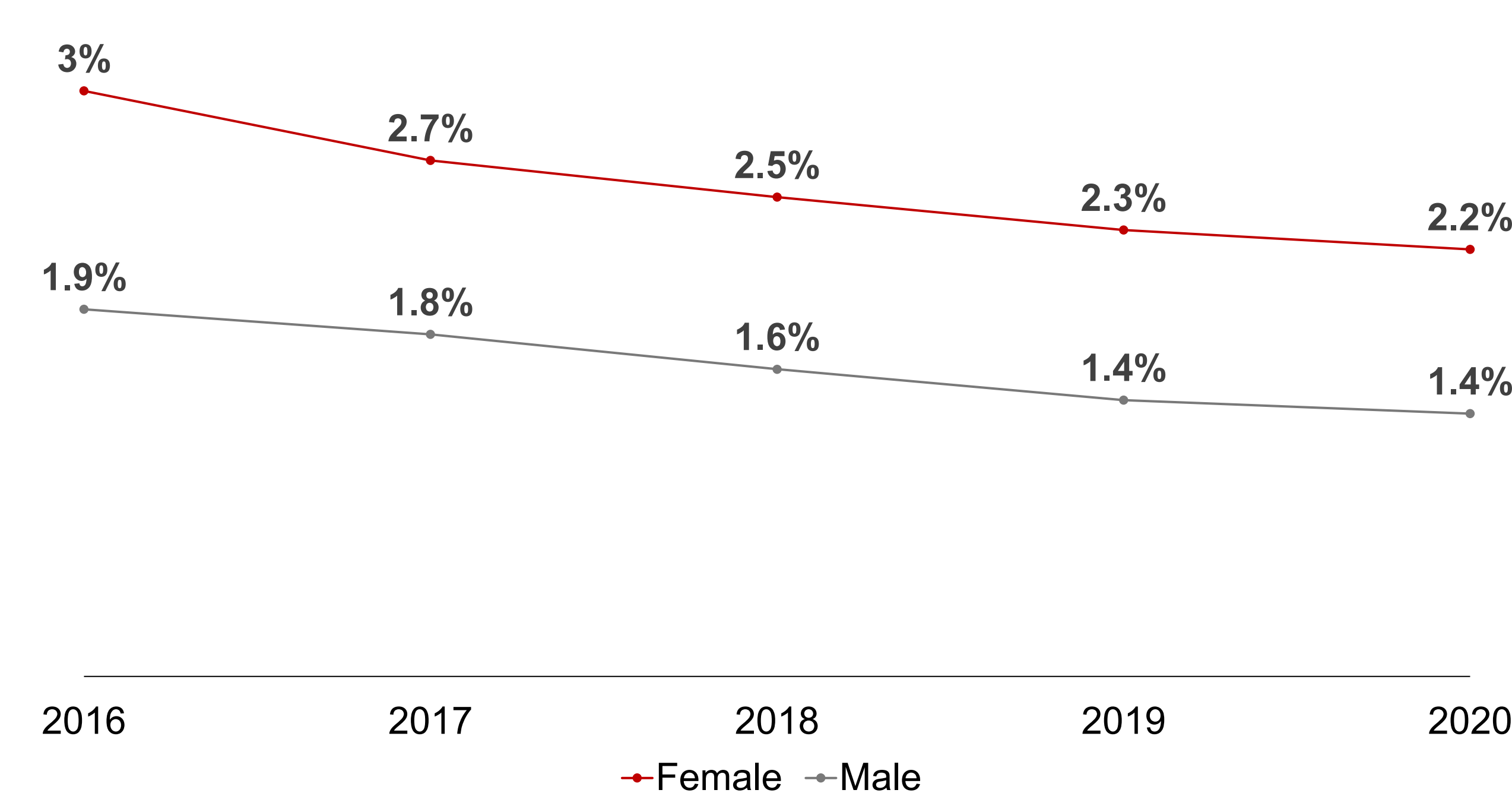
- For the rate of benzodiazepine utilization, members were included in the analysis if they were continuously enrolled in a particular year (2016 – 2020).
- Benzodiazepine utilizers were identified as members with ≥1 claim for ≥14 days of a benzodiazepine in the given year.
- The 14-day minimum was chosen to focus on long-term use of benzodiazepines.
- Benzodiazepines were included if they were indicated for anxiety disorders, insomnia, and/or muscle spasms. Benzodiazepines commonly used for pre-procedural sedation or abortive treatment for seizures were excluded.
- Anxiety risk was determined by responses to a Generalized Anxiety Disorder-2 Item questionnaire within an optional personal health assessment. Analysis was limited to members with recorded responses and continuous plan enrollment in 2020.
- Relationships between benzodiazepine use and socio-demographic factors were assessed for calendar year 2020 by comparing:
 - Continuously enrolled members and benzodiazepine utilizers
 - Continuously enrolled members with anxiety risk and benzodiazepine utilizers
- Member-level information was used for gender, race, and age. Data on age was reported by generation.
- Members were assigned to the high percentage poverty category if they were living at addresses in the top 20% of census tracts with high density of households in poverty. The rest of the population was assigned to the low percentage poverty category.

Results

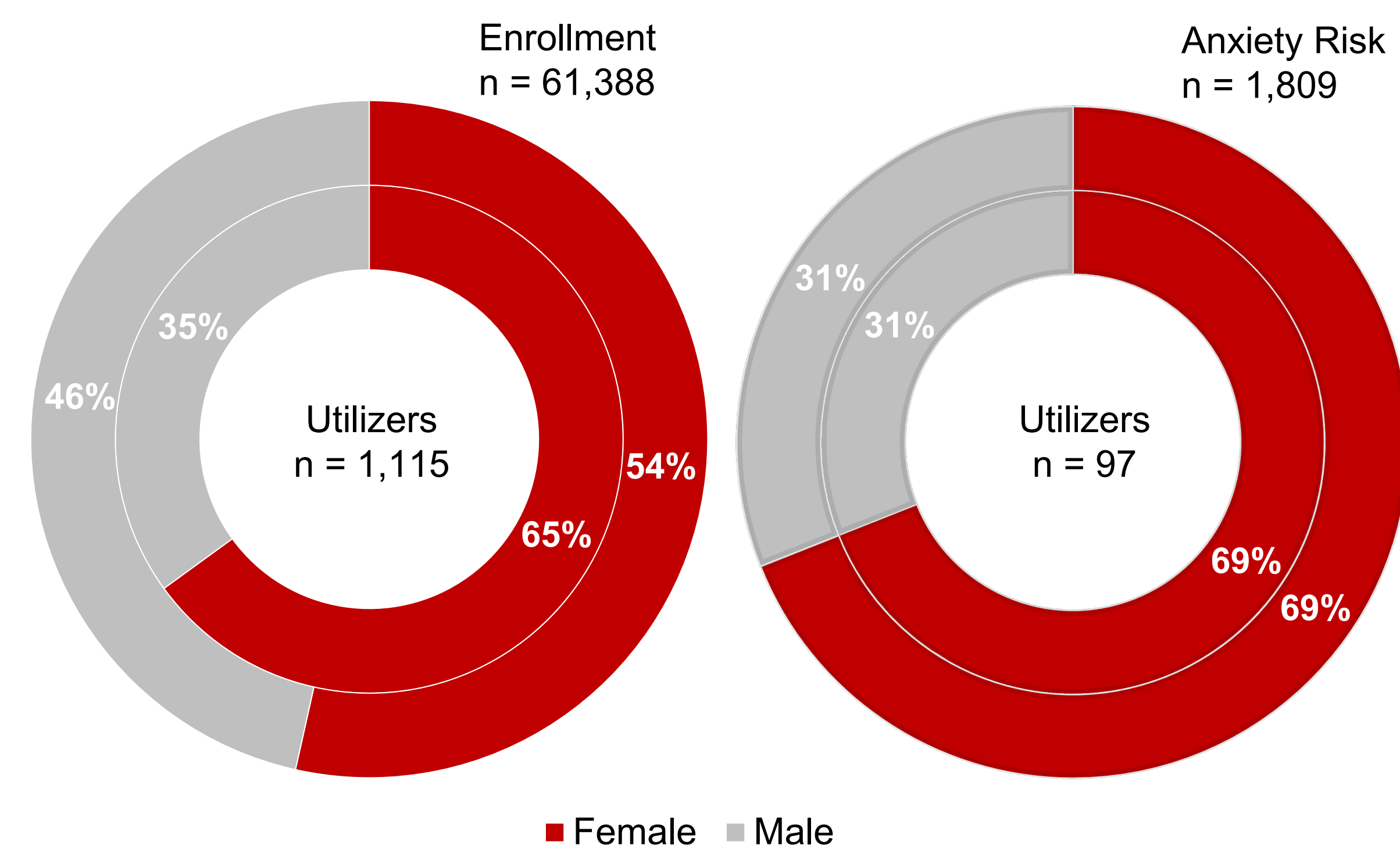
Percentage of Members Utilizing Benzodiazepines



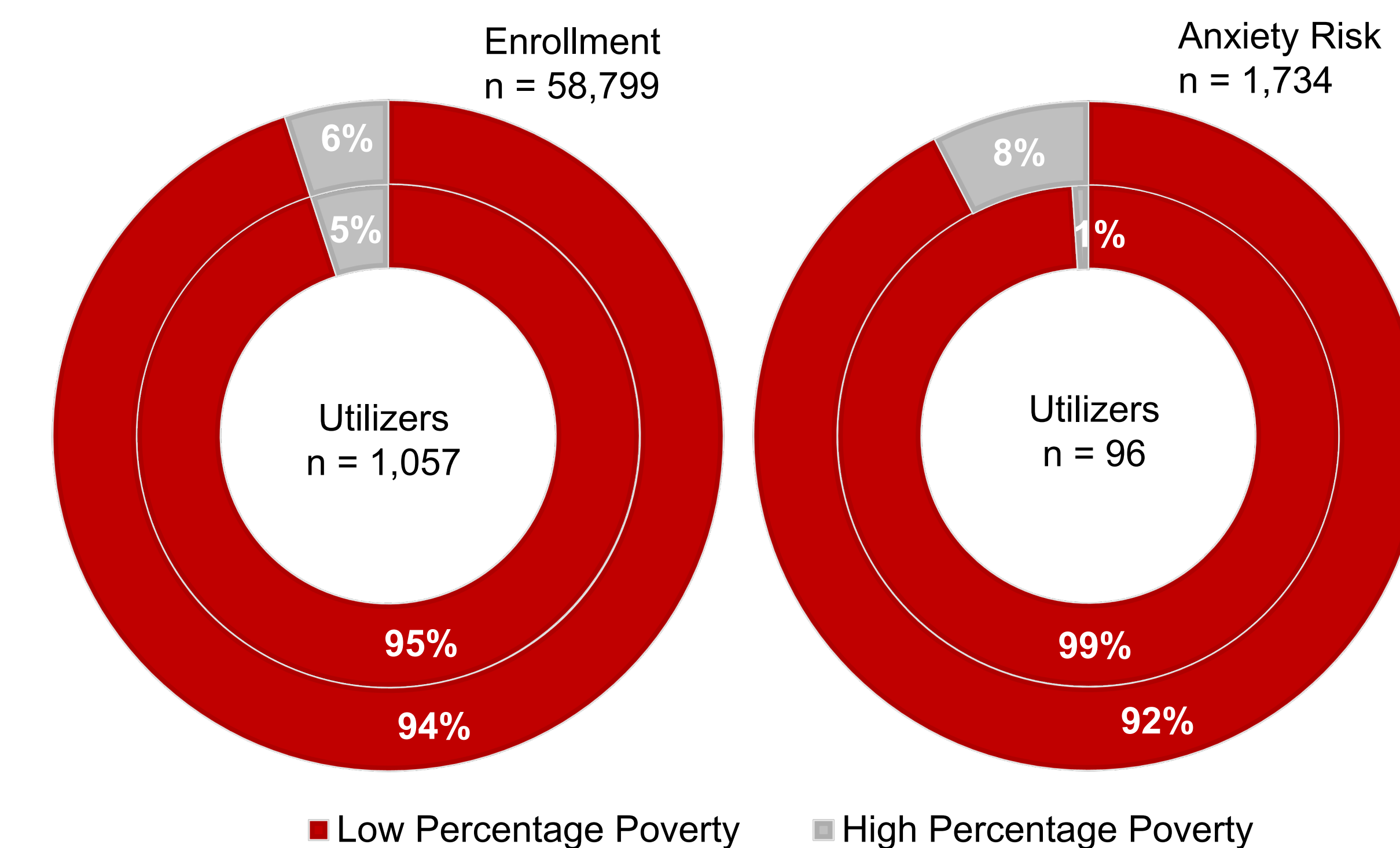
Percentage of Members Utilizing Benzodiazepines by Gender



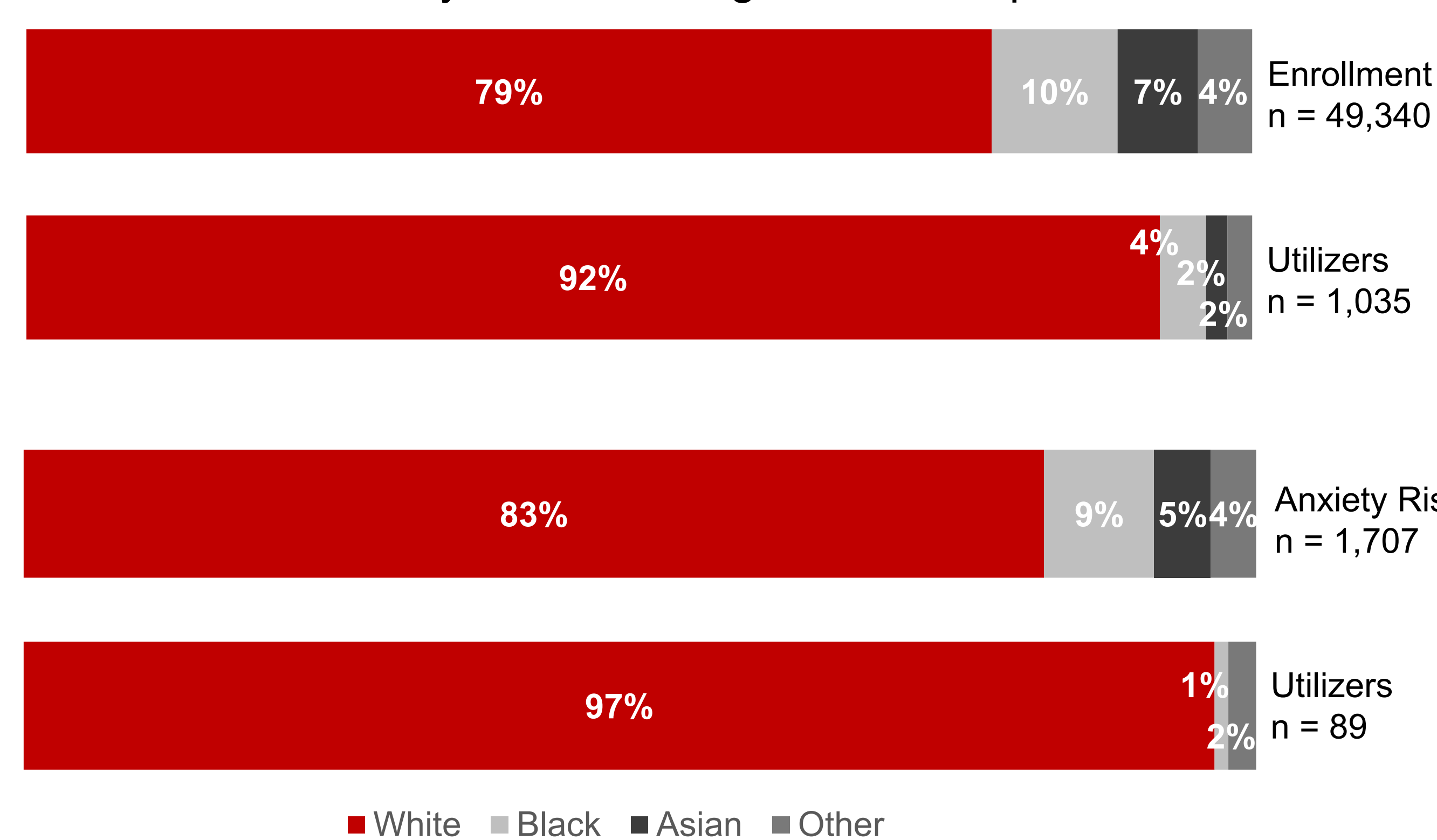
Members by Gender Utilizing Benzodiazepines



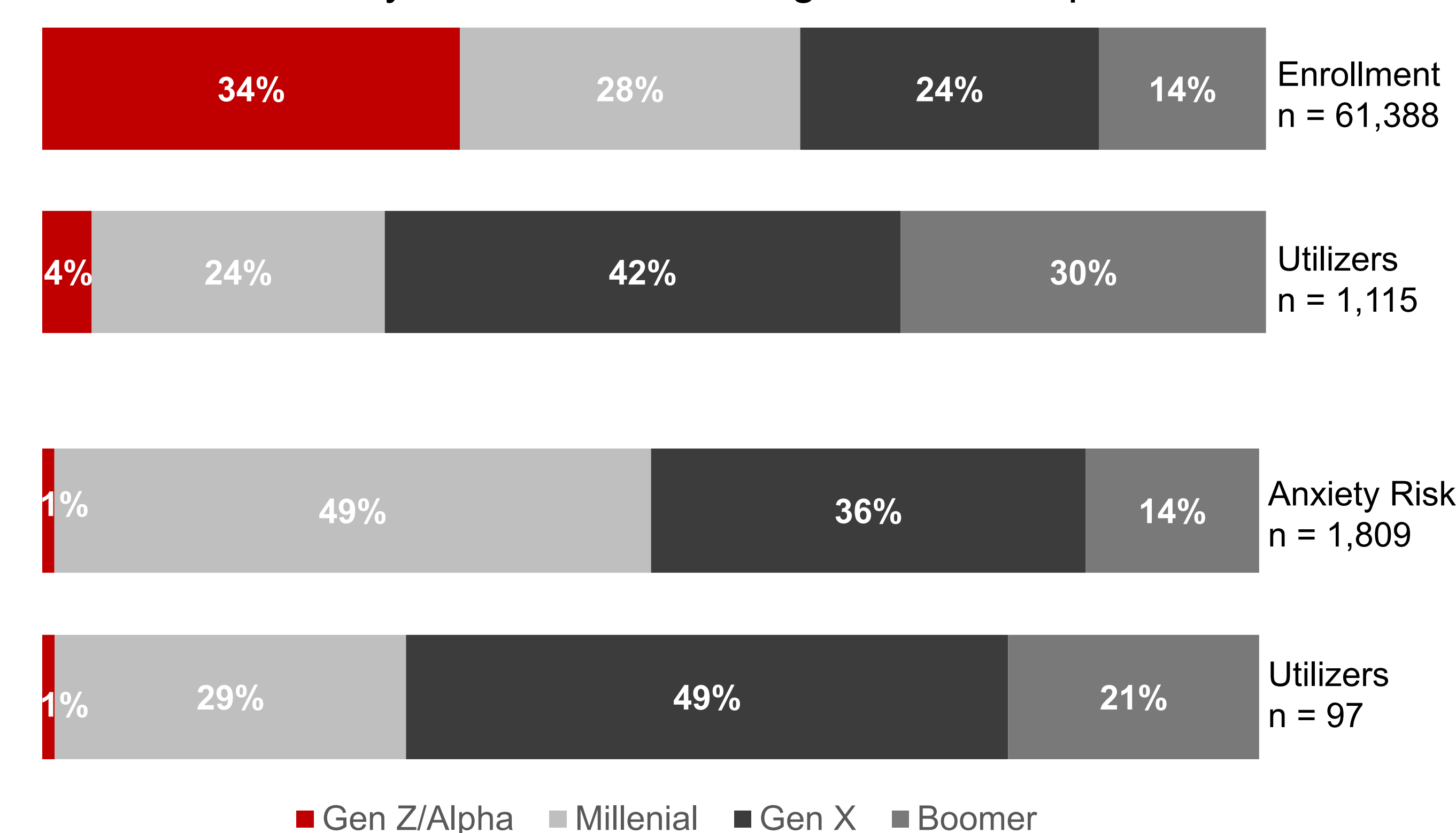
Members by Poverty Status Utilizing Benzodiazepines



Members by Race Utilizing Benzodiazepines



Members by Generation Utilizing Benzodiazepines



Discussion

- The percentage of members utilizing benzodiazepines steadily decreased from 2016 to 2020. This mirrors the prescribing trend identified in the study published in 2021 and may be related to recent efforts to reduce benzodiazepine utilization.² Benzodiazepine use decreased by 12.0% in female members and 12.5% in male members in our study population between 2018 and 2020.
- Female members accounted for just over half of the population but were responsible for nearly two-thirds of all benzodiazepine utilization. The difference between female and male utilization was statistically significant ($P < 0.05$), raising questions about whether prevalence or disease severity of conditions treated with benzodiazepines may be higher in female members.²
- Members with anxiety risk residing in a higher poverty area were less likely to use benzodiazepines than those with the same anxiety risk residing in a lower poverty area ($P < 0.05$). Patients with lower socio-economic status often have limited access to mental healthcare services and this may have contributed to the findings of this study.⁷
- White members utilized benzodiazepines more often than members of other races, both overall ($P < 0.05$) and when considering anxiety risk ($P < 0.05$). A study published in 2018 found similar results and suggested that white patients were more likely to misuse benzodiazepines than their Black, Asian, and Hispanic counterparts.⁶
- The Millennial generation represented the largest portion of adult members in the study population at 28%. However, the Gen X and Boomer generations were each responsible for a greater portion of benzodiazepine utilization compared to Millennials ($P < 0.05$). A study published in 2019 indicated that adults between 50-64 years old (the Boomer and Gen X generations) received more prescriptions for benzodiazepines than any other age group.⁵

Limitations

- Using 14 days as the threshold for long-term utilization increased the number of members identified and may not be the most accurate threshold as there is no universally accepted definition for long-term use of a benzodiazepine.
- Utilizing census tracts to determine poverty status does not allow for members to be individually identified as being above or below the poverty line based on their actual household income.

Conclusions

- Total benzodiazepine utilization decreased from 2016 to 2020.
- Female members and white members were more likely to use benzodiazepines compared to male members and members of other races, respectively.
- Older members were more likely to use benzodiazepines compared to younger members.

References

- Agarwal SD, Landon BE. Patterns in Outpatient Benzodiazepine Prescribing in the United States. *JAMA Network Open*. 2019;2(1):e187399.
- Milani SA, Raji MA, Chen L, Kuo YF. Trends in the use of benzodiazepines, Z-hypnotics, and serotonergic drugs among US women and men before and during the COVID-19 pandemic. *JAMA Network Open*. 2021;4(10):e2110112.
- US Food and Drug Administration. FDA drug safety communication: FDA warns about serious risks and death when combining opioid pain or cough medicines with benzodiazepines; requires its strongest warning. 2016. [cited 2022 Mar 11]. Available from: <https://www.fda.gov/drugs/drug-safety-and-availability/fda-drug-safety-communication-fda-warns-about-serious-risks-and-death-when-combining-opioid-pain-or-cough-medicines-with-benzodiazepines-requires-its-strongest-warning>.
- American Geriatrics Society. Ten Things Clinicians and Patients Should Question [Internet]. 2015. [cited 2022 Mar 11]. Available from: <https://www.choosingwisely.org/societies/american-geriatrics-society/>.
- Mausel DT, Lin LA, Blow FC. Benzodiazepine Use and Misuse Among Adults in the United States. *Psychiatr Serv*. 2019 Feb 1;70(2):97-106.
- Cook B, et al. Examining racial/ethnic differences in patterns of benzodiazepine prescription and misuse. *Drug Alcohol Depend*. 2018 Jan 1; 187: 29-34.
- Hodkinson S, Godoy L, Beers LS, Lewin A. Improving Mental Health Access to Low-Income Children and Families in the Primary Care Setting. *Pediatrics*. 2017 Jan; 139(1): e20151175.