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# The Role of Disease Severity and Gender in Polypharmacy Among Patients with NAFLD Enrolled in TARGET-NASH

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## Introduction

- Polypharmacy is a rising issue among adults, especially elderly and those with multiple comorbidities
- This cohort study assessed the effects of both gender and comorbidities on polypharmacy in patients with nonalcoholic fatty liver disease (NAFLD)

## Methods

- TARGET-NASH is a real-world longitudinal observational cohort of pediatric and adult patients with NAFLD across the United States and Europe
- For this analysis, reported medications were categorized by mechanism of action (MOA) among patients in the US
- Patient characteristics, including comorbidities, and distribution of medication use by disease phenotypes (as previously defined by Barritt et al.<sup>1</sup>) and gender are described
- Statistically significant differences were assessed using chi square or Fisher's exact test for categorical data and Kruskal-Wallis test for continuous data

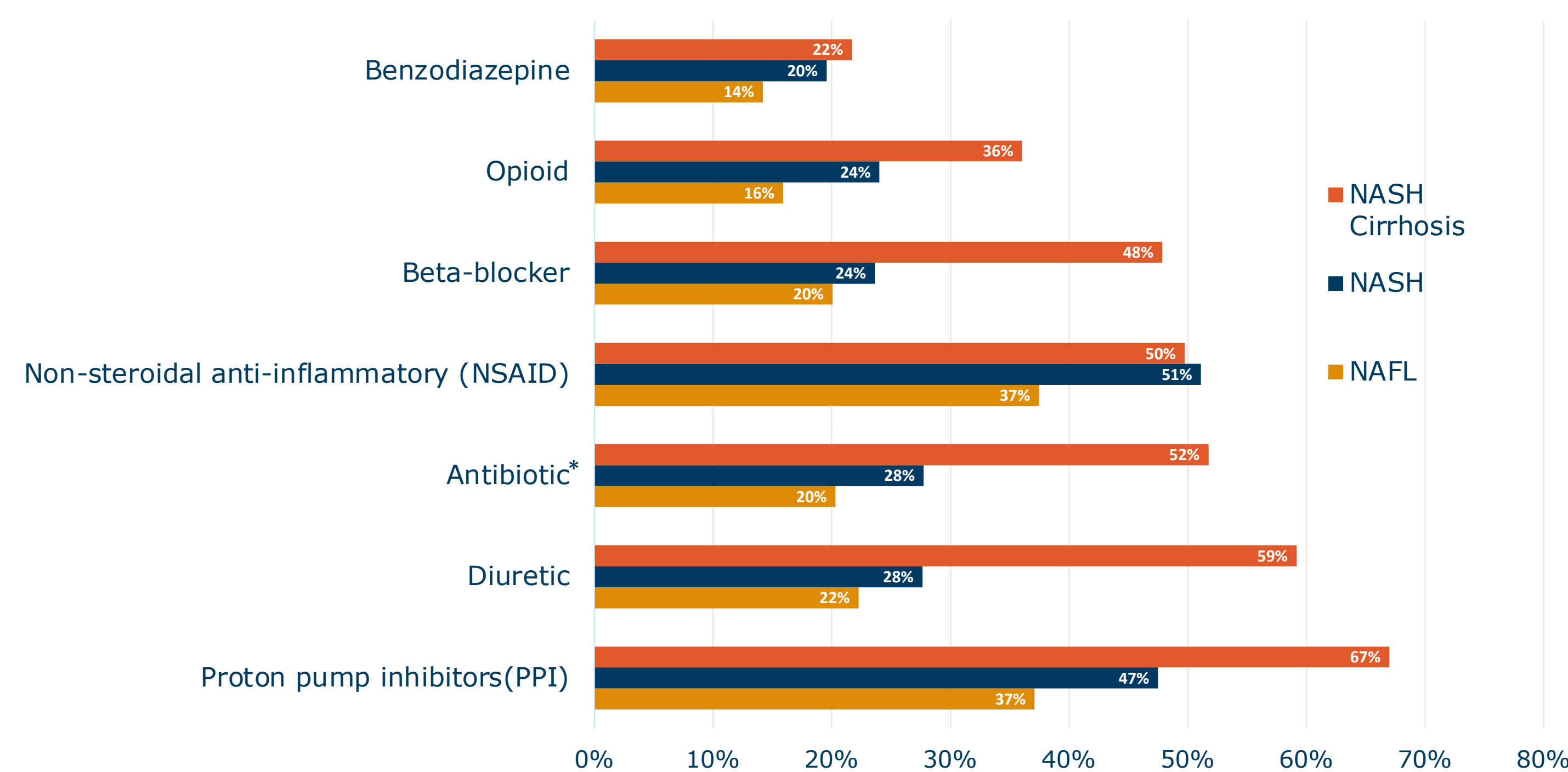
### Characteristics of the US Adult Cohort

Number enrolled = <b>4,562</b>	NASH = <b>44%</b>
Median age = <b>52</b>	Cirrhosis = <b>38%</b>
Sex, female = <b>58%</b>	Initiated a new medication after enrollment = <b>20%</b>
Ethnicity, white = <b>70%</b>	Prescribed >5 medications = <b>75%</b>
Taking ≥ 1 medication prior to enrollment = <b>73%</b>	Prescribed >10 medications = <b>37% (of which 69% were female)</b>
NAFL = <b>18%</b>	

## Results

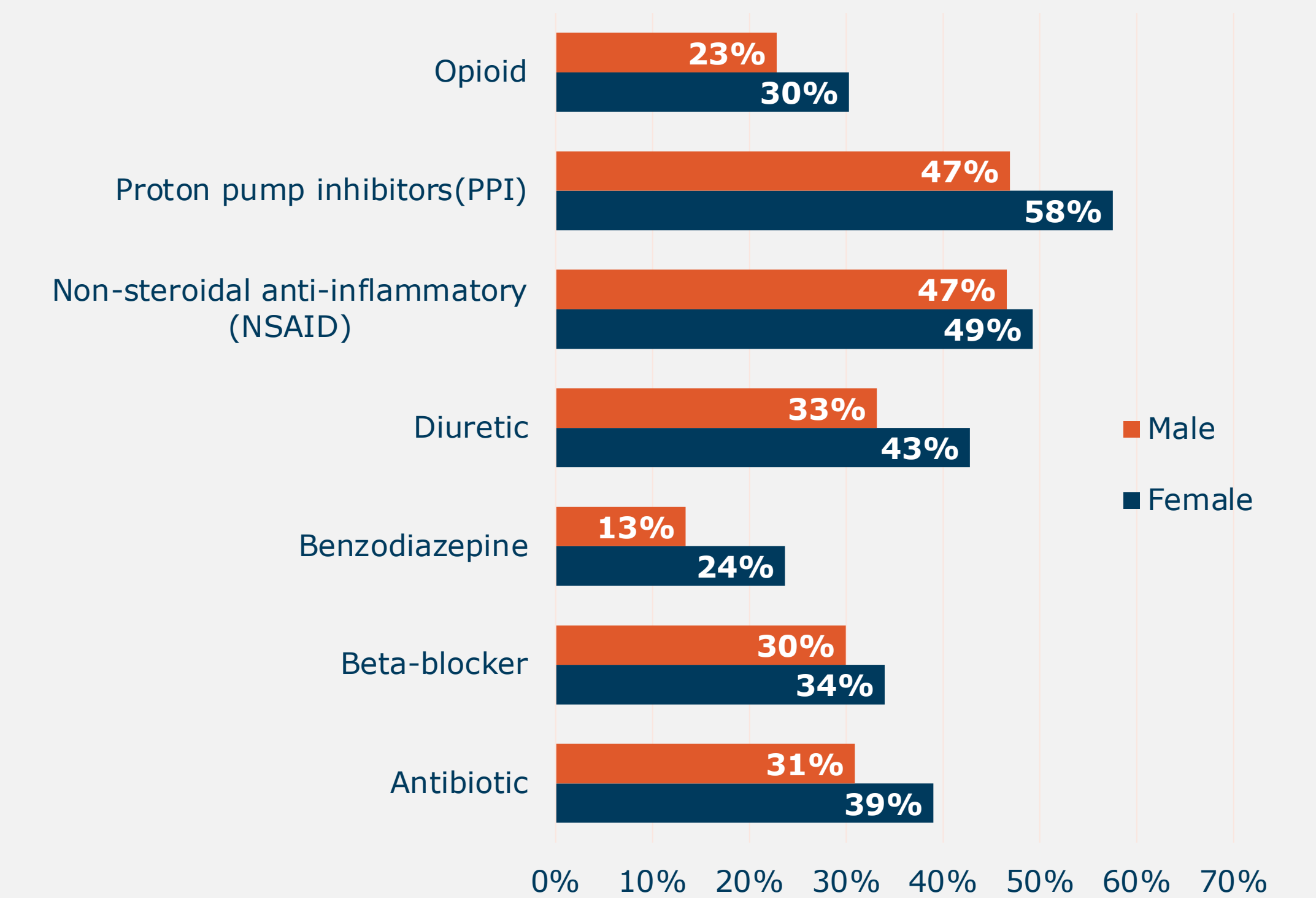
- The median number of medications used in females was nine compared to seven in males (p<0.001)
- As liver disease severity increased, so did the likelihood of having at least one non-liver-related comorbidity
- The prevalence of chronic pain treated with medications increased with liver disease severity and occurred in almost 50% of cirrhotic participants (p<0.001) who were treated with benzodiazepines (22%), opioids (36%), NSAIDs (50%) and PPIs (67%) (p<0.001)
- Female patients were on more medications than males particularly SSRIs (46% versus 23%), opioids (30% versus 23%), vitamins (52% vs 41%), PPIs (58% vs 47%) and benzodiazepines (24% vs 13%)

**Figure 1. Medication use in Adults with NAFLD by Disease Severity**



\*Not including rifaximin

**Figure 2. Medication use in Adults with NAFLD by Gender**



## Conclusions

- Patients with NASH cirrhosis are most affected by polypharmacy with women having cirrhosis at a greater risk of polypharmacy
- Opioid, benzodiazepine and NSAID use is prevalent among patients with cirrhosis despite the risks of adverse effects
- Medication use for chronic pain is also prevalent in patients with cirrhosis highlighting the need for management plans that optimize safety balanced against therapeutic efficacy

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<sup>1</sup>Barritt 4th, A. S., Gitlin, N., Klein, S., Lok, A. S., Loomba, R., Malahias, L., ... & Sanyal, A. (2017). Design and rationale for a real-world observational cohort of patients with nonalcoholic fatty liver disease: the TARGET-NASH study. *Contemporary Clinical Trials*, 61, 33-38.