



Measuring Health Outcomes in Fishing Industry Participants and Fishing Communities Using the Behavioral Risk Factor Surveillance Survey (BRFSS)

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IIFET 2018

Summary

Research Questions:

Q: How do health outcomes for fishing industry participants compare to others in the general population?

Q: Is BRFSS a good data source for assessing human well-being in fishing communities?

Results:

A: We find evidence that fisherman have similar or better health outcomes as the general public, with some notable exceptions

A: Yes

Human well-being in fishing communities

Defining “well-being”

- Framework. Breslow (2016)
- Secondary data use. Jacob (2010), Jepson and Colburn (2013)
- Stakeholder-defined. Biedenweg et al. (2014)

Defining “fishing communities”

- Multiple definitions. Clay and Olson (2008)

Fishing safety and health

- Health Risks for Commercial Fisherman in AK. Eckert, Baker, and Cherry (2018)
- Rights-based fisheries and safety. Pfeiffer and Gratz (2016)
- Workplace injury among AK Fisherman. Jin, Kit-Powell, and Talley (2001)

→ *This work is interesting because*

- longitudinal data with fishing participants identified – can compare to a reference group (better context for evaluating well-being)
- Focus directly on health and social outcomes of interest
- Community definition is based on self-identified occupation, not geography

What is BRFSS?

Big: 400K+ interviews/year

- 50 states and all US territories
- 11+ countries internationally use BRFSS
- Google Scholar 27K + articles citing BRFSS



Old: 1984 – now. Longest, biggest health survey in the world.

Modular: Core, optional, and state-added

Data Types: Demographics, behavioral health, and emerging health issues

Implementation: land-line and cell phone RDD collection.

Dataset: Stratified and weighted. Multiple CDC computed outcomes included

Examples:

- *The Spread of the Obesity Epidemic in the US: 1991-1998*
- *Risk Factors for Asthma in US adults*
- *Factors Predicting Individual Emergency Preparedness: A Multi-state Analysis of 2006 BRFSS Data*

Refs:

- BRFSS and Industry and Occupation data. Towle et al. (2015)
- Flu by Occupation in WA state. Anderson et al. (2012)

Washington BRFSS with Industry and Occupation Qs

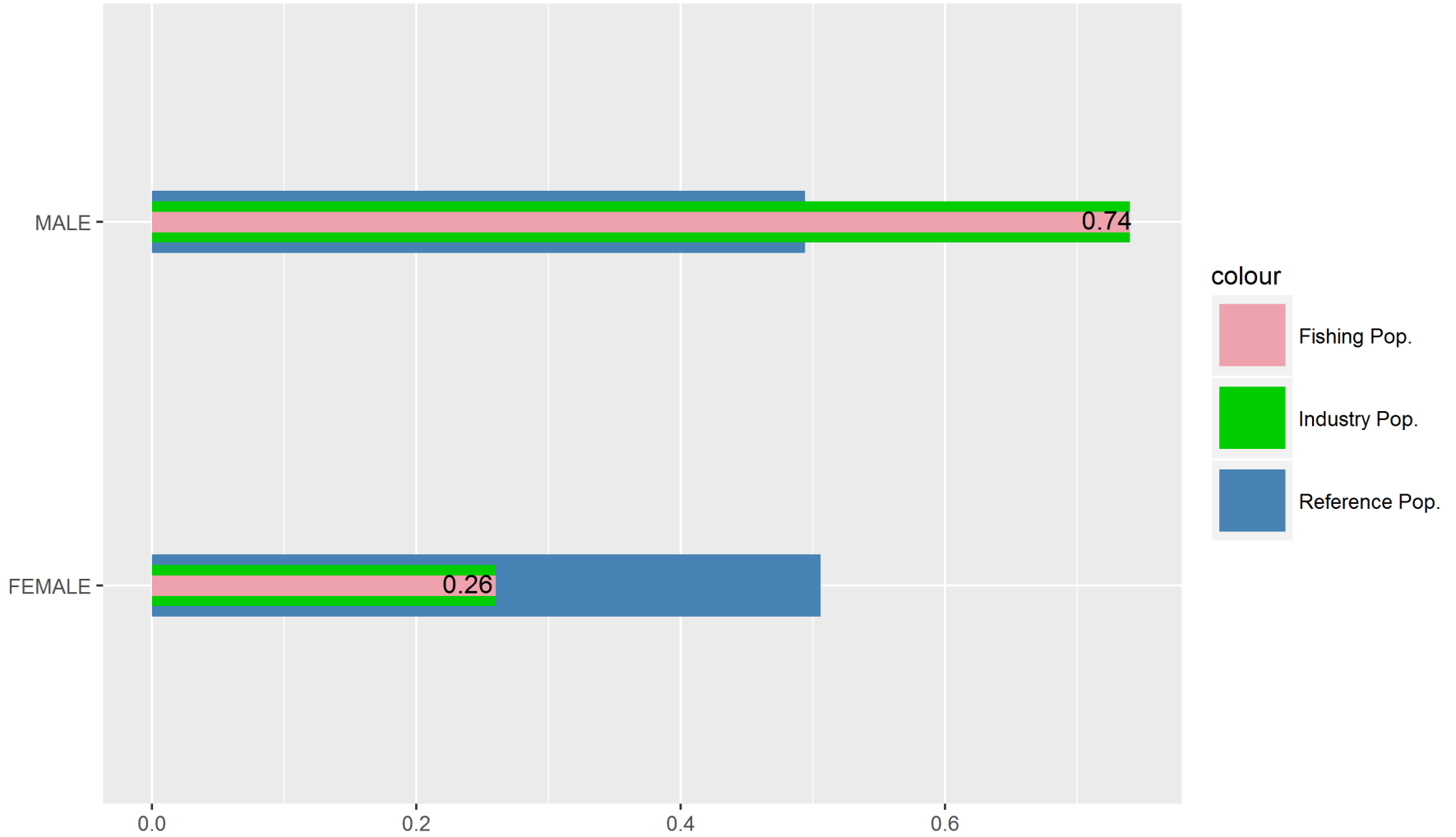
- Source: Washington State Department of Health
- 2011-2016
- Why Washington:
 - Relevancy to West Coast
 - I & O data part of WA survey since 2011
- Definition of reference group
- Questions we are focusing on (general health, health care access, and social support)
- Methods – prevalence estimates
- Overview of questions we asked
- Census coding



Study Population		
Group	Definition	Sample Size
Fishing Community	Census codes for “Fishing, hunting, and trapping” and “Nondurable good manufacturing: Seafoods and other miscellaneous foods, not otherwise classified”	175
Other Natural Resource Industries (NAICS 11)	Census codes for “Agriculture, Forestry, Fishing, Hunting, Mining” with Fishing Community respondents removed	1377
All Workers	All adults “working for wages”, “self-employed”, or “out of work for <1 year” with Fishing Community respondents removed	42,587
Total BRFSS survey respondents	Everyone who completed the survey	81,710

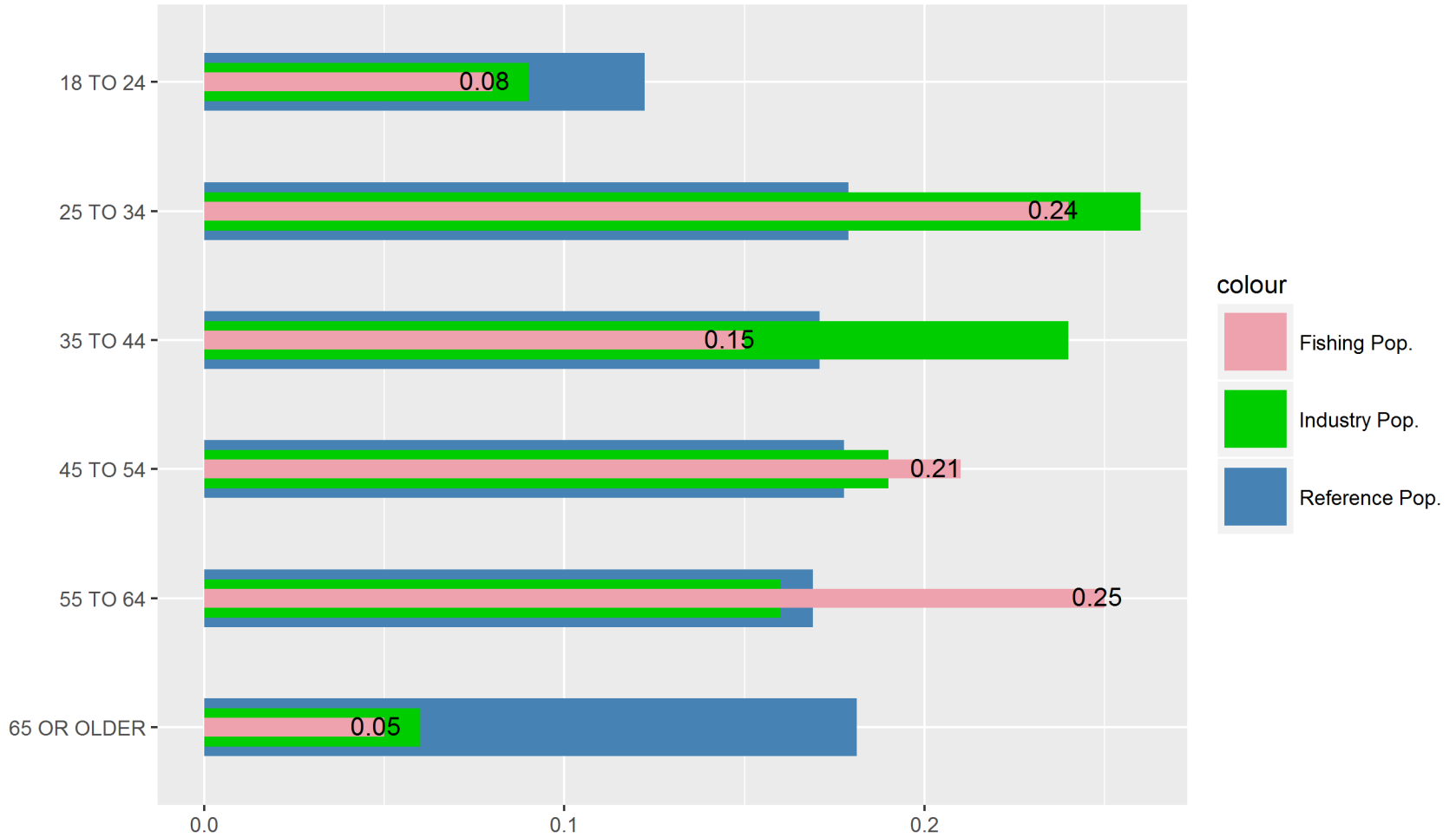
Demographics

SEX



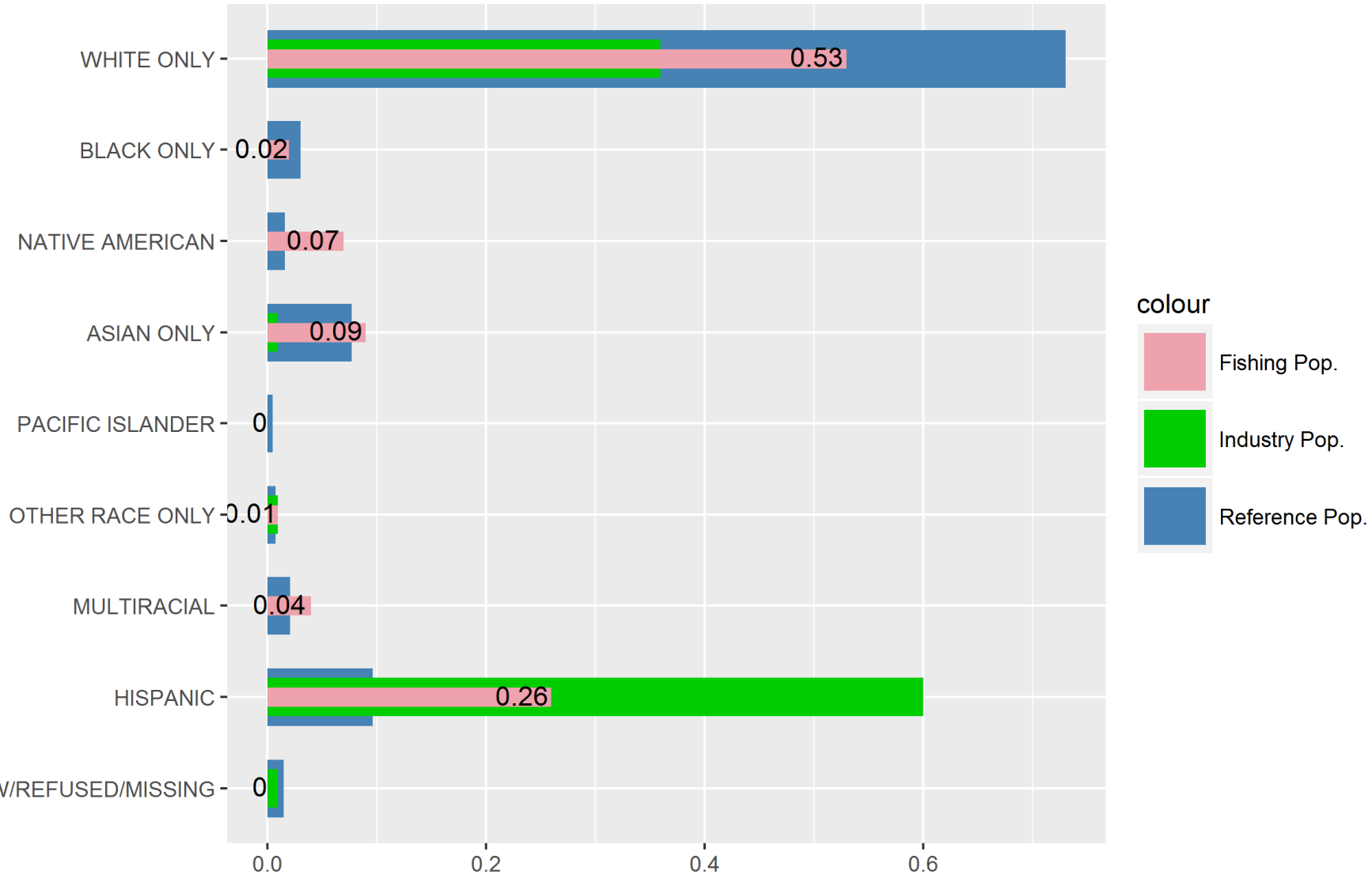
Demographics

AGE

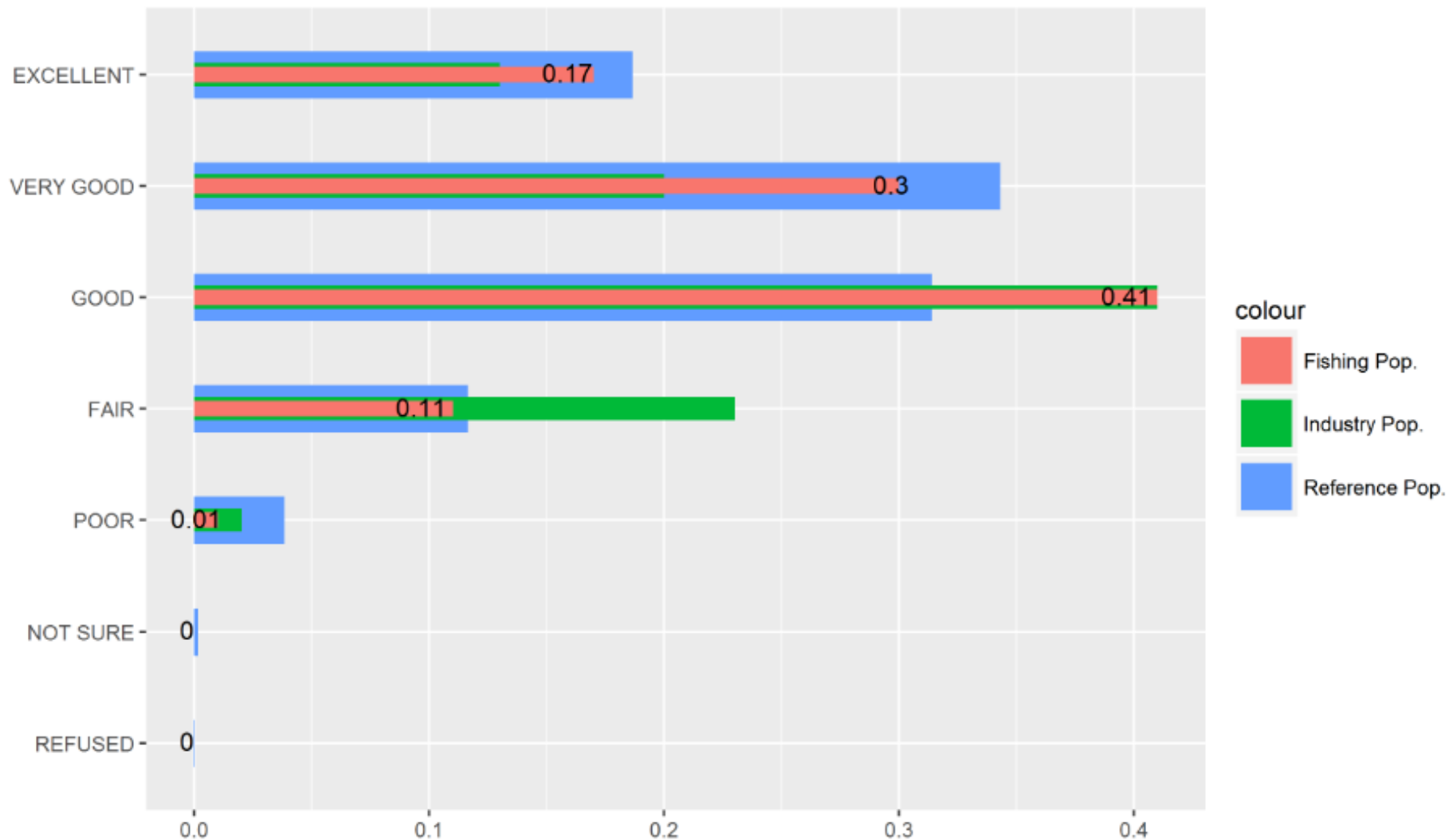


Demographics

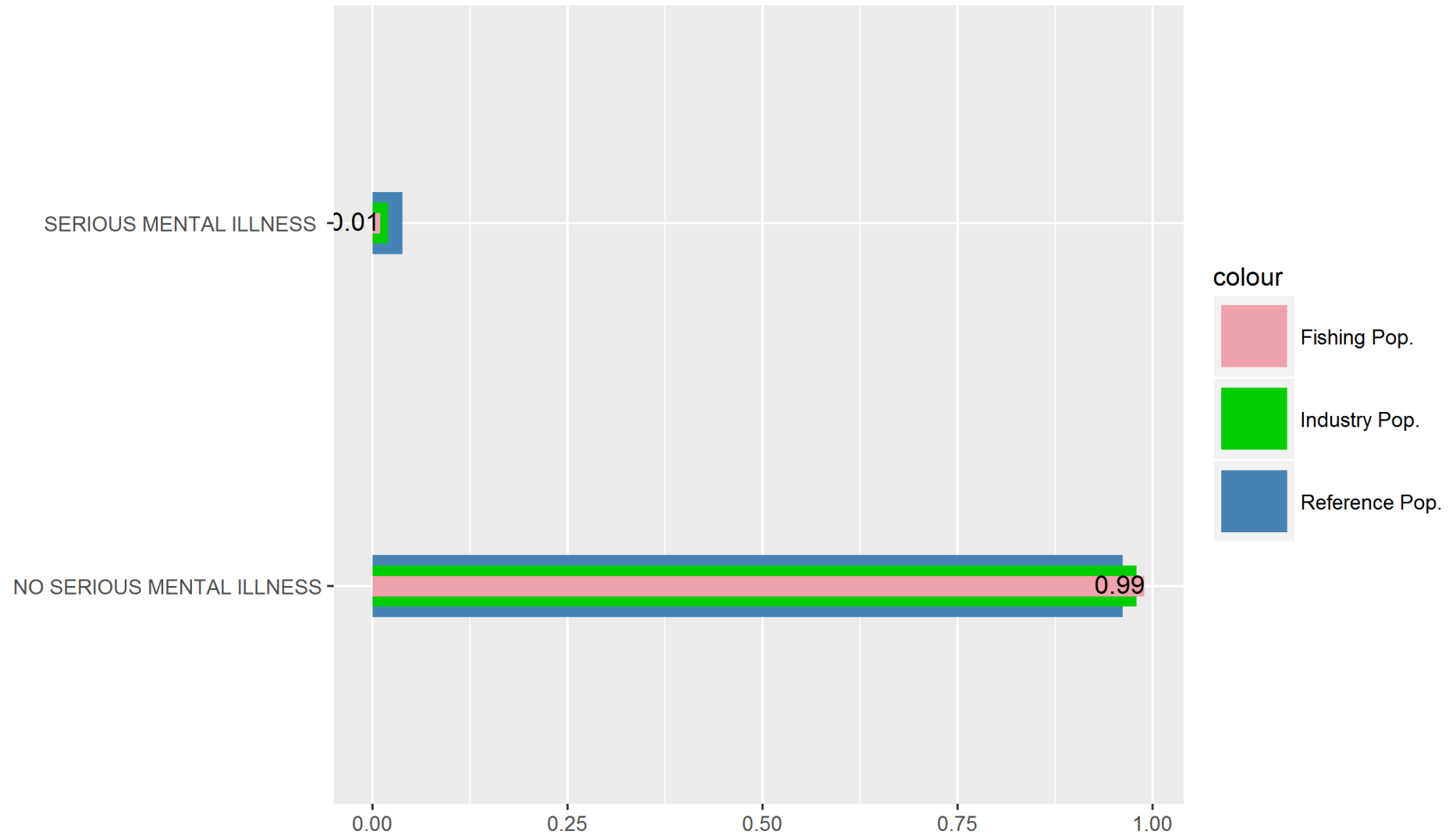
RACE



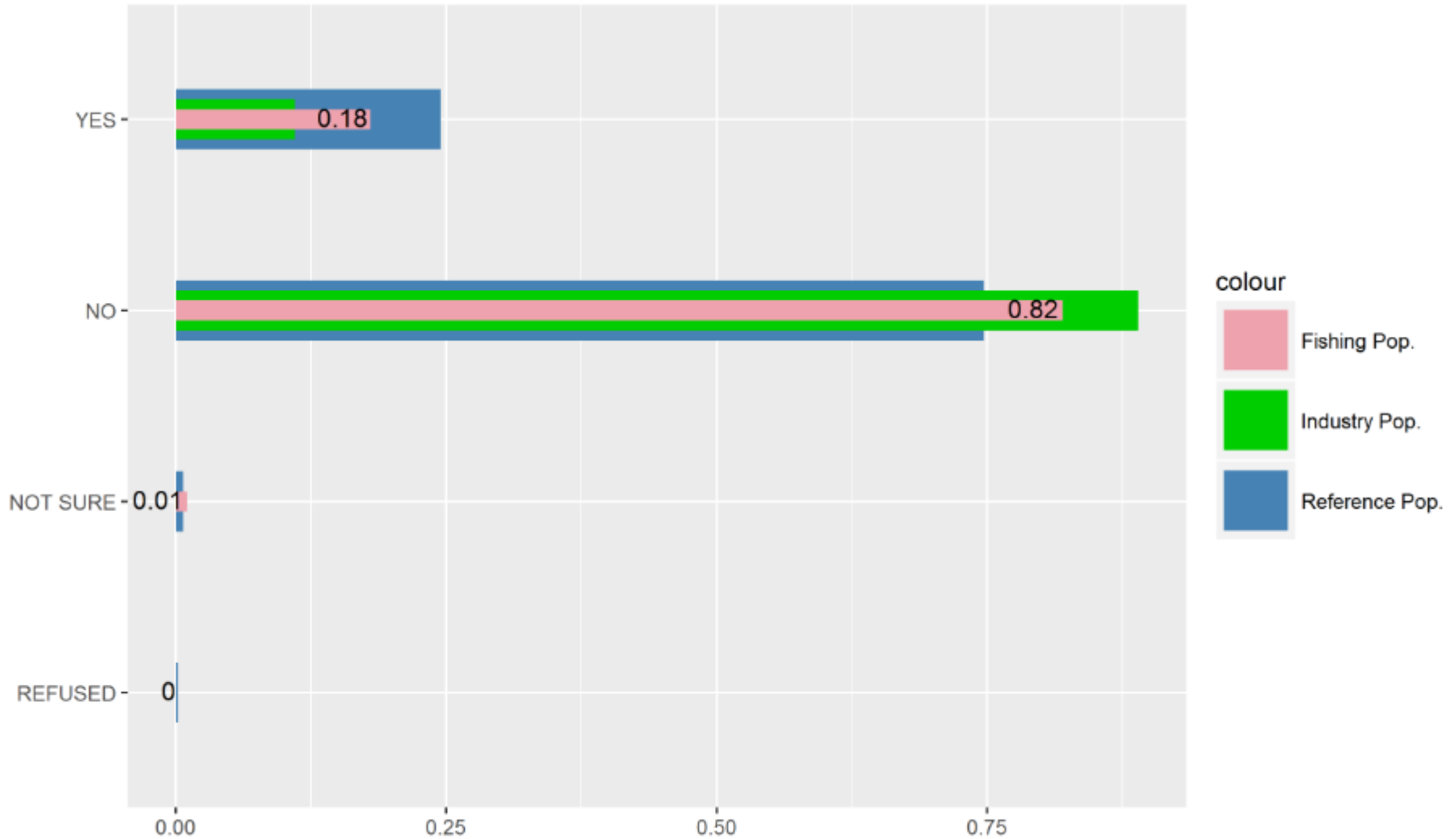
Would you say that in general your health is:



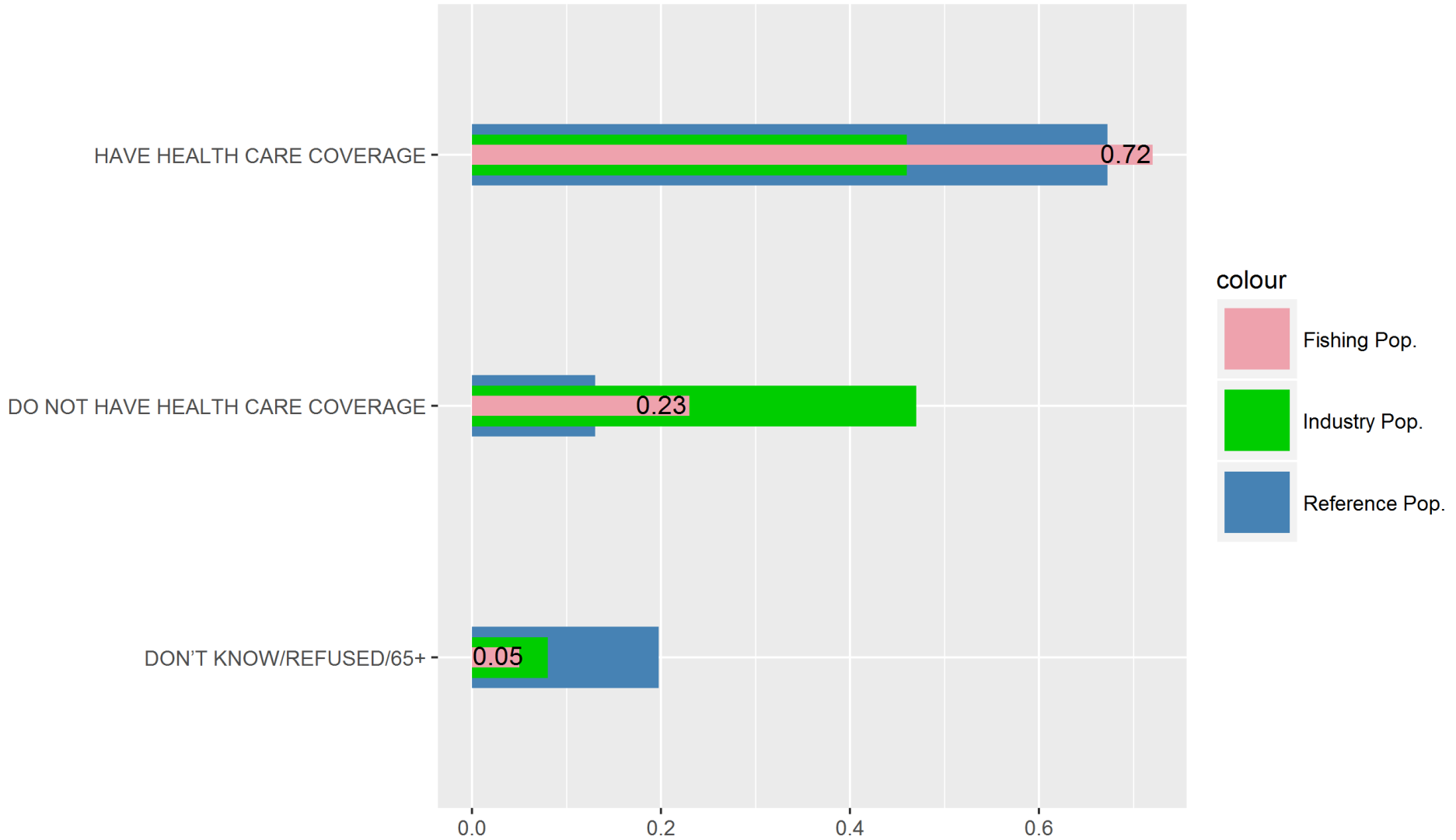
Computed Serious Mental Illness



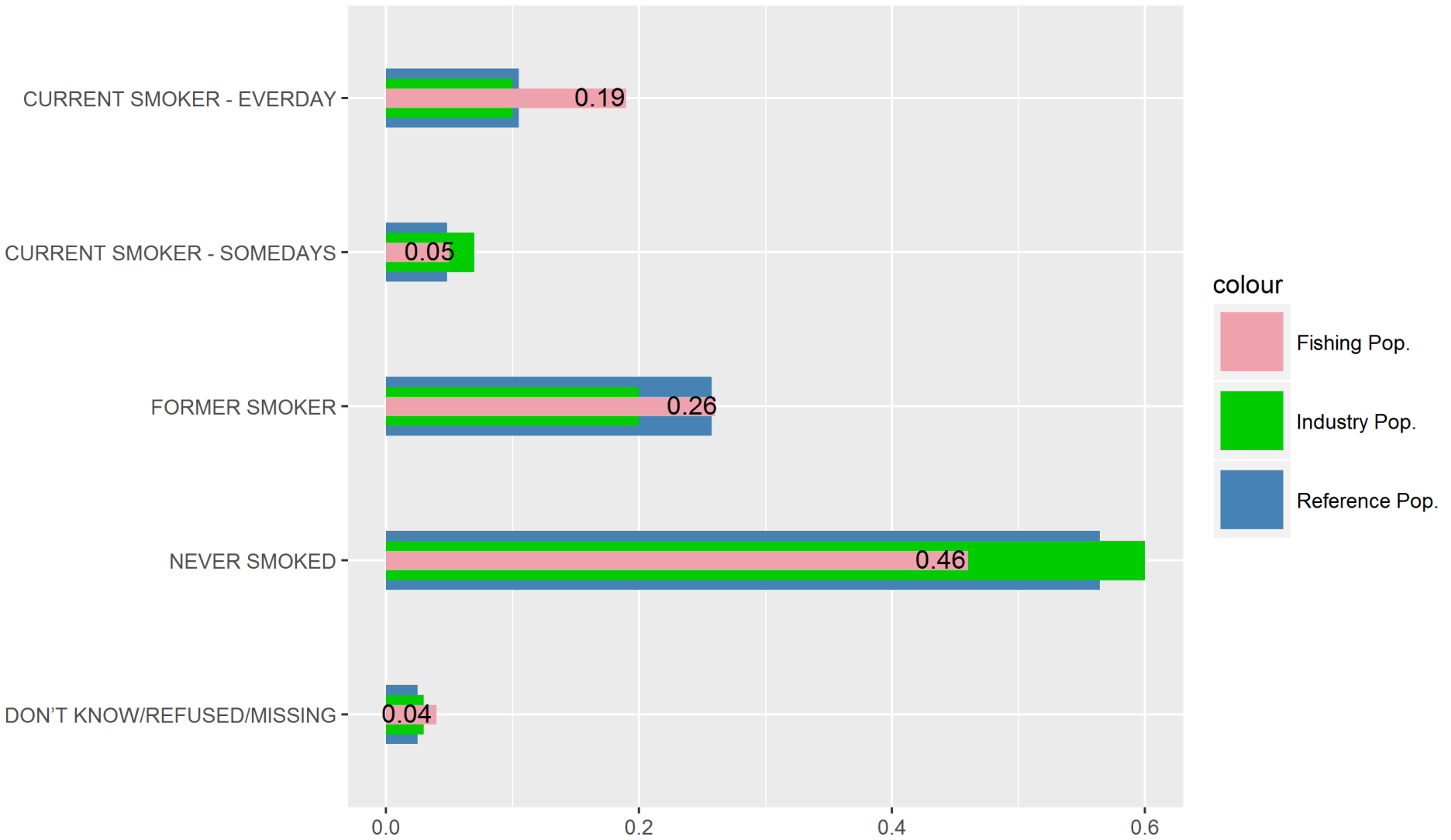
Are you limited in any way in any activities because of physical, mental, or emotional problems?



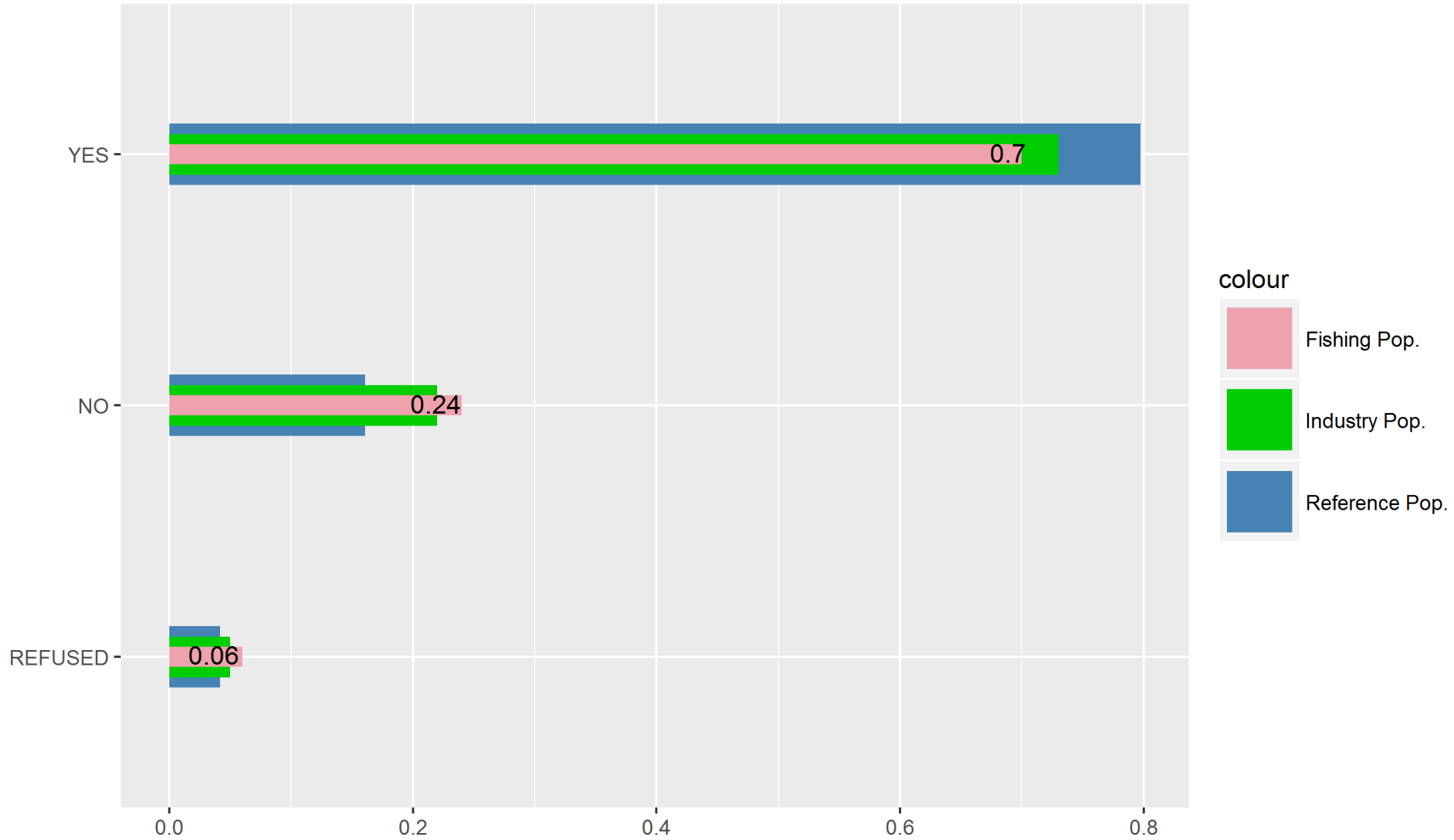
RESPONDENTS AGED 18-64 WITH HEALTH CARE COVERAGE



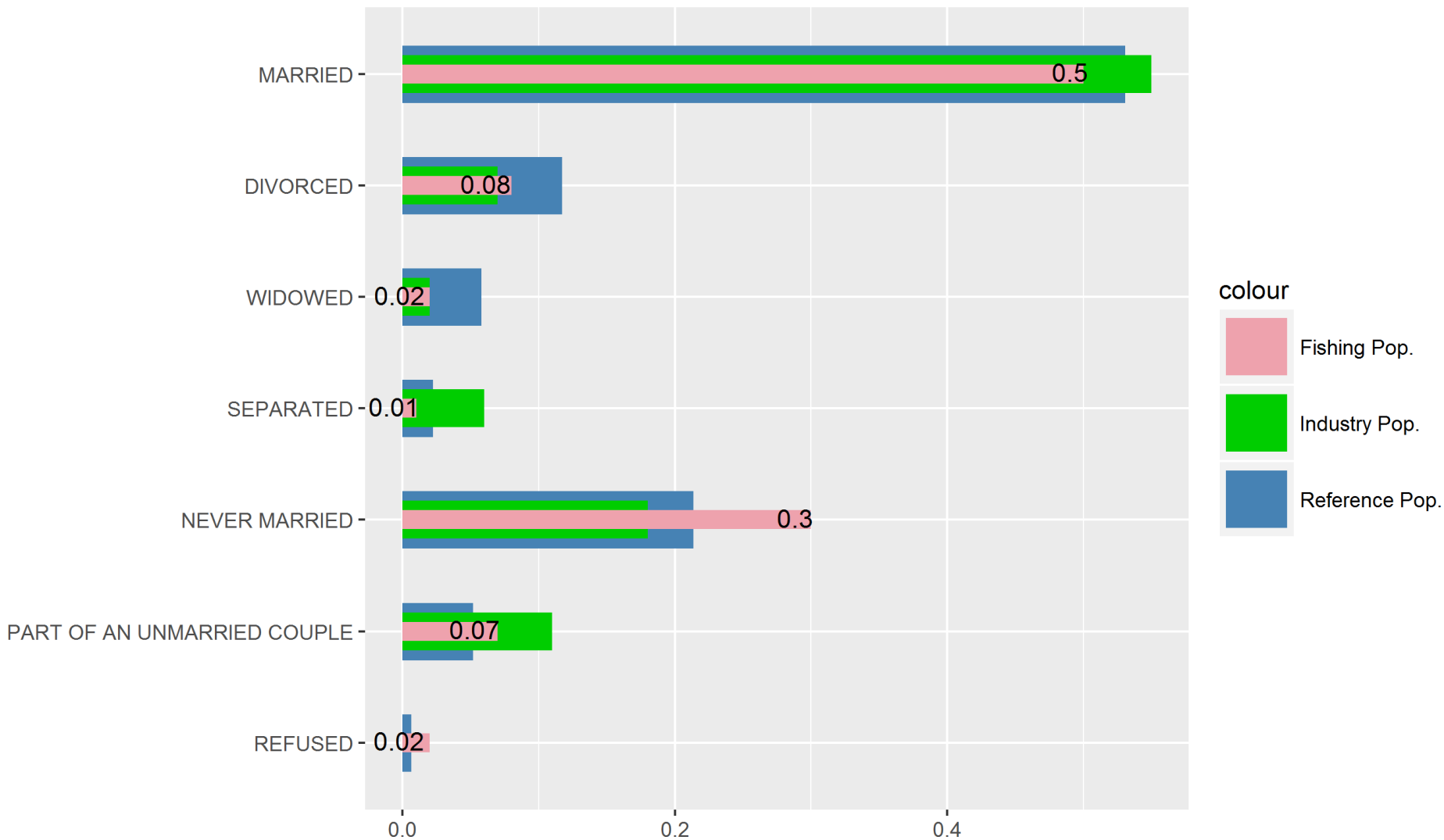
COMPUTED SMOKING STATUS



BINGE DRINKING



Are you: Married, divorced, widowed, separated, never married, part of an unmarried couple?



Discussion

- Fishing industry participants in Washington seem to have similar health outcomes to people in the general population
- Fits with existing literature on human well-being in fishing communities
- Longitudinal data in general, and BRFSS in particular, can compare outcomes to reference groups.
- Rather than calculating an index of outcomes from everyone (including non-fishing dependent individuals) and defining a fishing community in terms of geography, we are able to identify the population of interest and compare them to others

Discussion

- Repeated longitudinal surveys have additional potential uses in social impact assessment, integrated social-ecological models
- Time series of results (identify changes in well-being, impact assessment)
- Comparison across:
 - Geography
 - Industry subsets
- Requires larger sample size than we have available
- Additional questions
 - Demographics
 - Social Support and Community Resilience

Thank you

- Jennifer Marcum, WA Dept. of Labor and Industries
- Mark Serafin, WA Dept. of Health
- Karma Norman, NOAA, Northwest Fisheries Science Center

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