



The Epidemiology of Postoperative Catastrophic Health Expenditure in the United States

Ali I. Rae, MD, MPH, Anam Noor Ehsan, MBBS, Alan Yang, BS, Hannah Gilder, MD, Niteesh K. Choudhary, MD, PhD, Justin B. Dimick, MD, MPH, Marcella Alsan, MD, MPH, PhD, Andrea Pusic, MD, Chuan-Chin Huang, ScD, **Kavitha L. Ranganathan, MD**

Brigham and Women's Hospital, Division of Plastic Surgery, Department of Surgery & Program in Global Surgery and Social Change, Harvard Medical School

Introduction

- Healthcare is the largest source of debt in collection in the United States
- Over 23 million people struggle with medical debt in the U.S despite insurance.
- Catastrophic expenditure (CHE) is a term that describes the negative consequences of unaffordable healthcare.
- Cost of this magnitude decreases one's ability to afford basic subsistence needs including food and clothing.

Gap in Knowledge:

- The epidemiological burden of CHE in surgical patients is unknown.
- Risk factors for CHE in surgical patients remain unclear.

Study Aims:

- Quantify the epidemiological burden of postoperative CHE in surgical patients.
- Identify risk factors for CHE among surgical patients.

Methods

- The Medical Expenditure Panel Survey was used to evaluate patients undergoing surgery from 2016-2019.
- Primary outcome: prevalence of postoperative CHE by the formula:

$$\text{CHE} = \frac{\text{Total medical costs}}{\text{Total family income}} > 10\%$$

- Impact of age, sex, income, and insurance status on CHE was evaluated using multivariate logistic regression.

Results

- Of 3,573 postoperative patients, 24.9% experienced CHE.
- Low socioeconomic status was significantly associated with higher likelihood of CHE.
 - Lowest income patients were 11 times more likely to experience CHE than high-income patients. (OR 11.23, 95%CI [8.01-15.75], $p < 0.001$).
- Patients with public insurance were 36% more likely to experience CHE than the privately insured patients. (OR 1.36, 95%CI [1.06 – 1.76], $p < 0.001$).
- Age, gender, insurance status, and socioeconomic status were significantly associated with CHE.

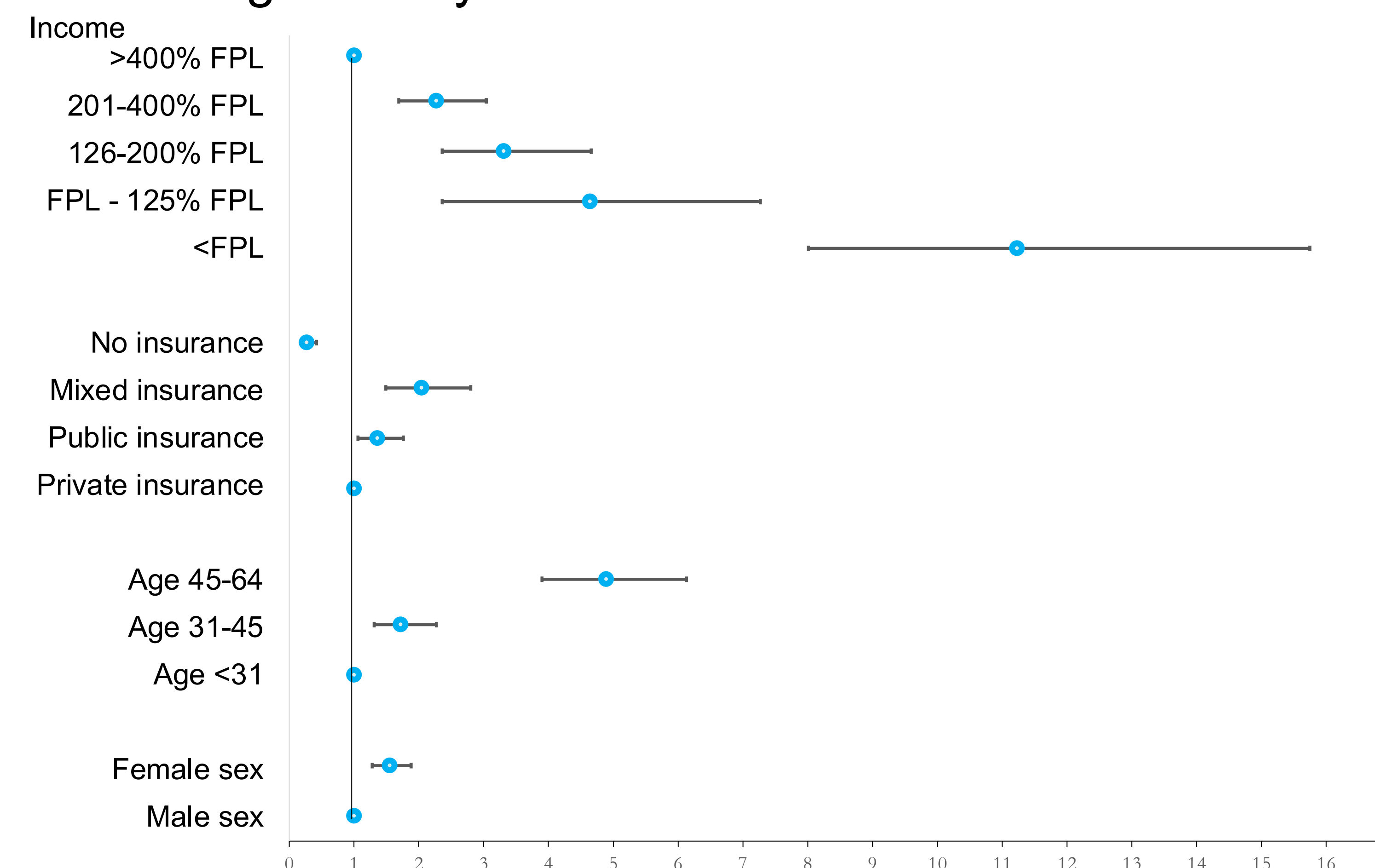


Figure 1: Factors associated with increasing risk of CHE
*FPL = Federal poverty level

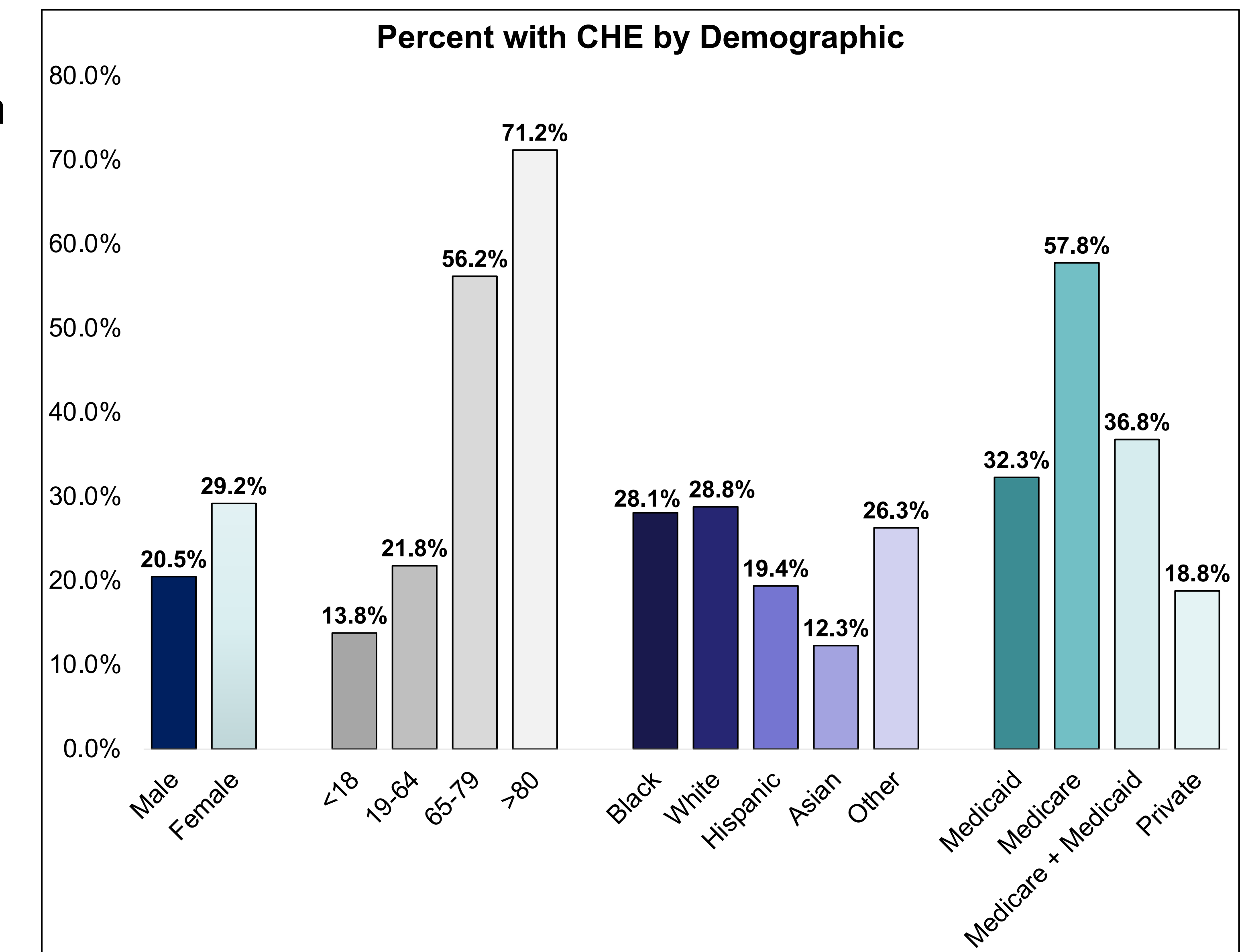


Figure 2: Prevalence of CHE stratified by demographic factors.

Conclusions

- Over 20% of patients struggle with unaffordable out-of-pocket costs after surgery.
- Age, insurance status, gender, and income were risk factors significantly associated with CHE.
- Social safety net programs targeted towards high-risk groups can mitigate consequences of unaffordable healthcare costs.