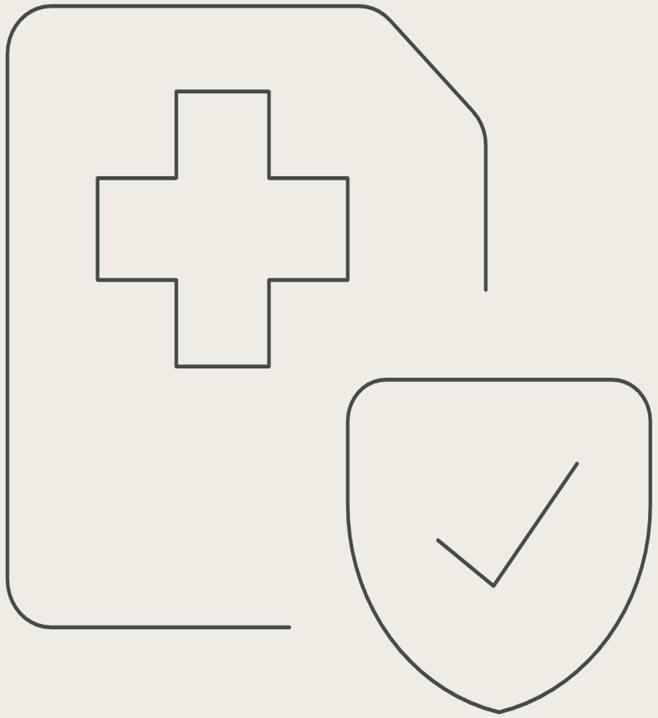


Health Insurance and Healthcare Utilization in Peri-Urban Nepal

A Survey-Weighted Analysis Using Andersen's Behavioral Model

Gaurab Bhattarai[1], Sandhya Niroula[1], Niroj Bhandari[2], Subash Wagle[1], Amod Kumar Poudyal[1]

[1]Central Department of Public Health, Institute of Medicine, Tribhuvan University, Nepal

[2]Children's Hospital of Philadelphia, USA

Background

- OOP remains at 59.39% of total health expenditure—more than double the global average.

- NHIP launched in 2017 to reduce out-of-pocket spending and increase access

- Evidence on service-specific utilization in peri-urban settings is limited.

- The program faces a financial crisis with billions in unpaid dues, threatening its sustainability.

Objective

This study compares healthcare utilization between insured and uninsured households in peri-urban Nepal using Andersen's Behavioral Model.

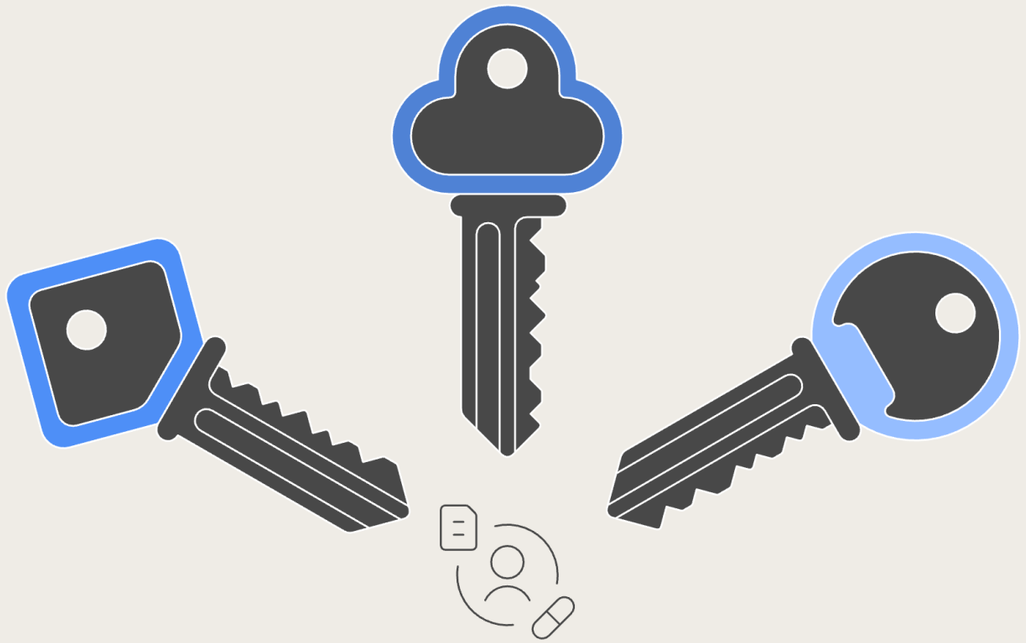
Andersen’s Behavioral Model

Enabling Factors

Resources facilitating or hindering access to care, such as income and insurance.

Predisposing Factors

Individual characteristics influencing health service use, including demographics and beliefs.



Need Factors

Immediate drivers of service use, including perceived and evaluated health needs.

Andersen's Behavioral Model

Methodology

01

Study Design

Cross-sectional comparative study

02

Setting

Suryabinayak municipality, Bhaktapur (60.9% NHIP)

03

Sample

Multistage stratified sampling technique (150 insured, 151 uninsured)

04

Data Collection

Structured interviews via KoboToolbox

05

Analysis

Survey-weighted logistic regression with DAG

06

Outcomes

Healthcare utilization (OPD, diagnostic, emergency, inpatient, preventive) in past 6 months

Enrollment Patterns: Who Enrolls in NHIP?

This table details the characteristics of insured versus uninsured households, revealing disparities that indicate potential adverse selection and other socioeconomic factors influencing National Health Insurance Program enrollment.

Characteristic	Insured Households (%)	Uninsured Households (%)	Disparity
Higher secondary education or above	55%	39%	+16%
Chronic illness in household	56%	41%	+15%
Occupation (formal)	65%	55%	+10%

Enrollment Patterns Reveal Adverse Selection and Inequity

Chronic Illness

55% insured vs. **39%** uninsured (p=0.007)

→ **Higher-risk individuals enroll more**

Ethnicity

65.3% Brahmin/Chhetri insured vs. **50.3%** uninsured (p=0.026)

→ **Privileged castes enroll more**

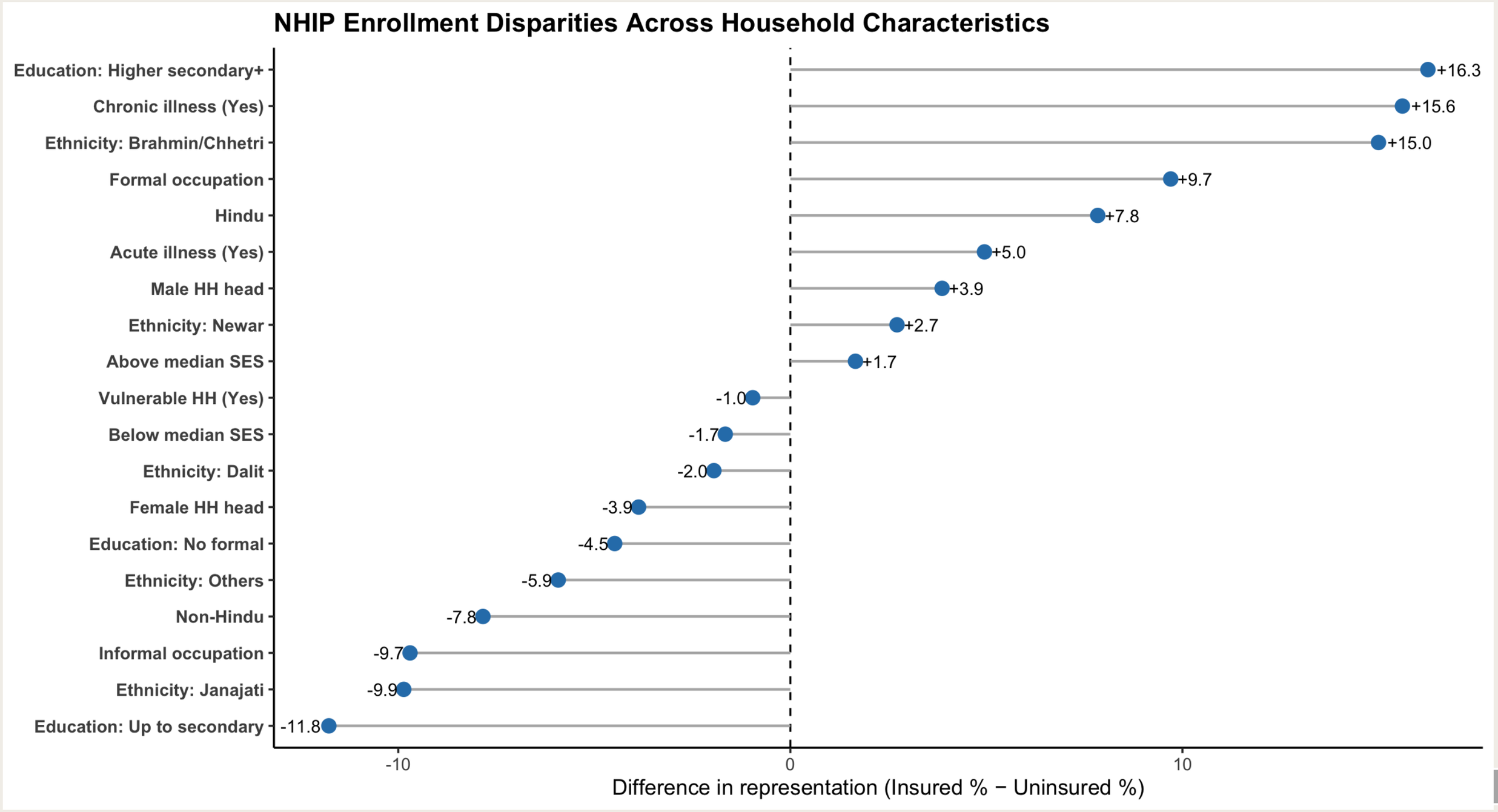
Education

55.3% with higher secondary+ insured vs. **39.1%** uninsured (p=0.015)

→ **Better-educated households enroll more**

- Adverse selection threatens equity and financial sustainability.

Who enrolls in NHIP?



Insured Households Had Higher Utilization Across Most Services

74.7%

Overall Utilization

74.7% insured (p<0.001)

60.7%

OPD Services

60.7% insured (p<0.001)

68.0%

Diagnostic Services

68.0% insured (p<0.001)

19.3%

Inpatient Services

19.3% insured (p=0.013)

12.7%

Emergency Services

12.7% insured (p=0.013)

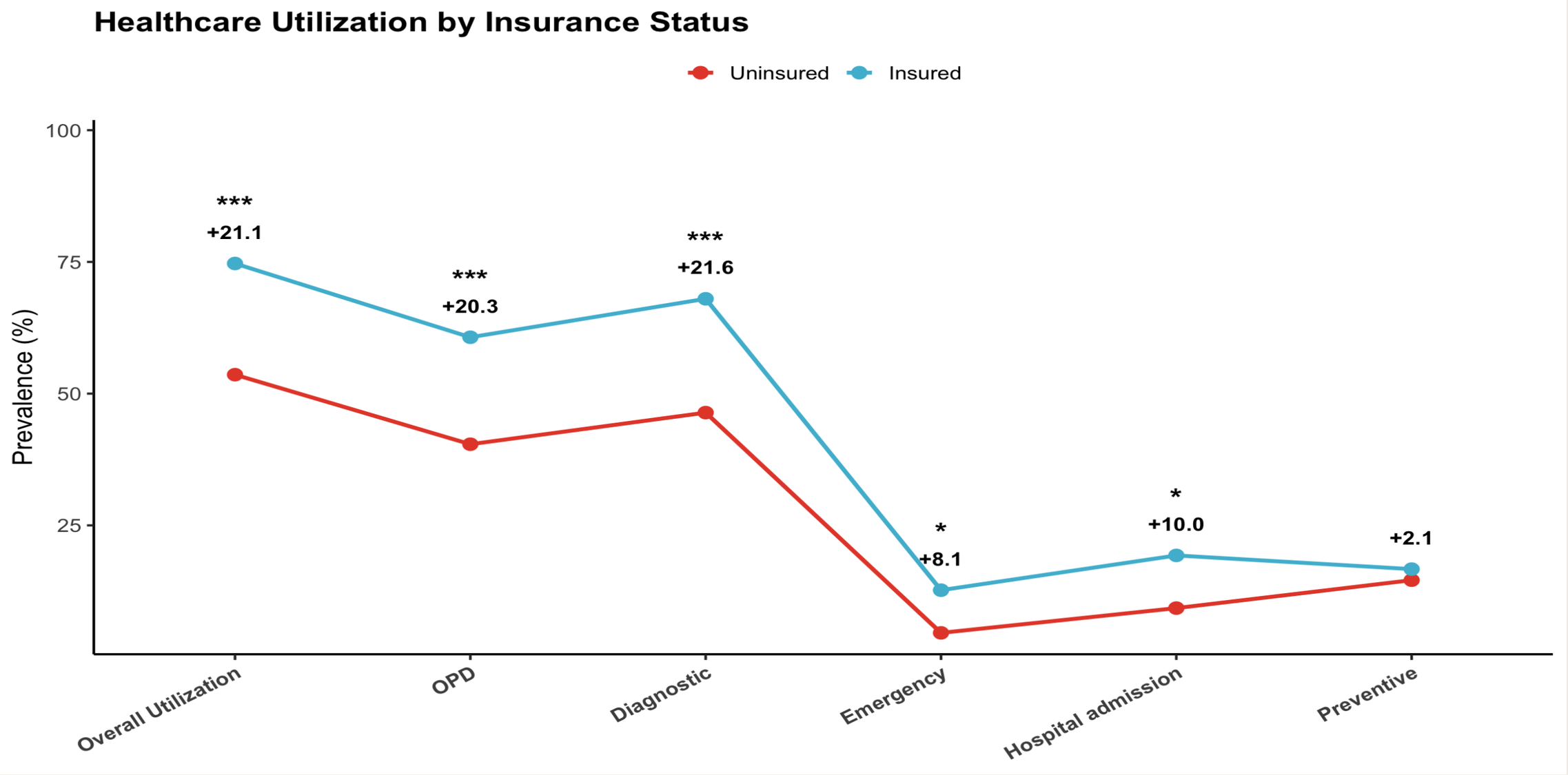
16.7%

Preventive Services

16.7% insured (p=0.617, not significant)

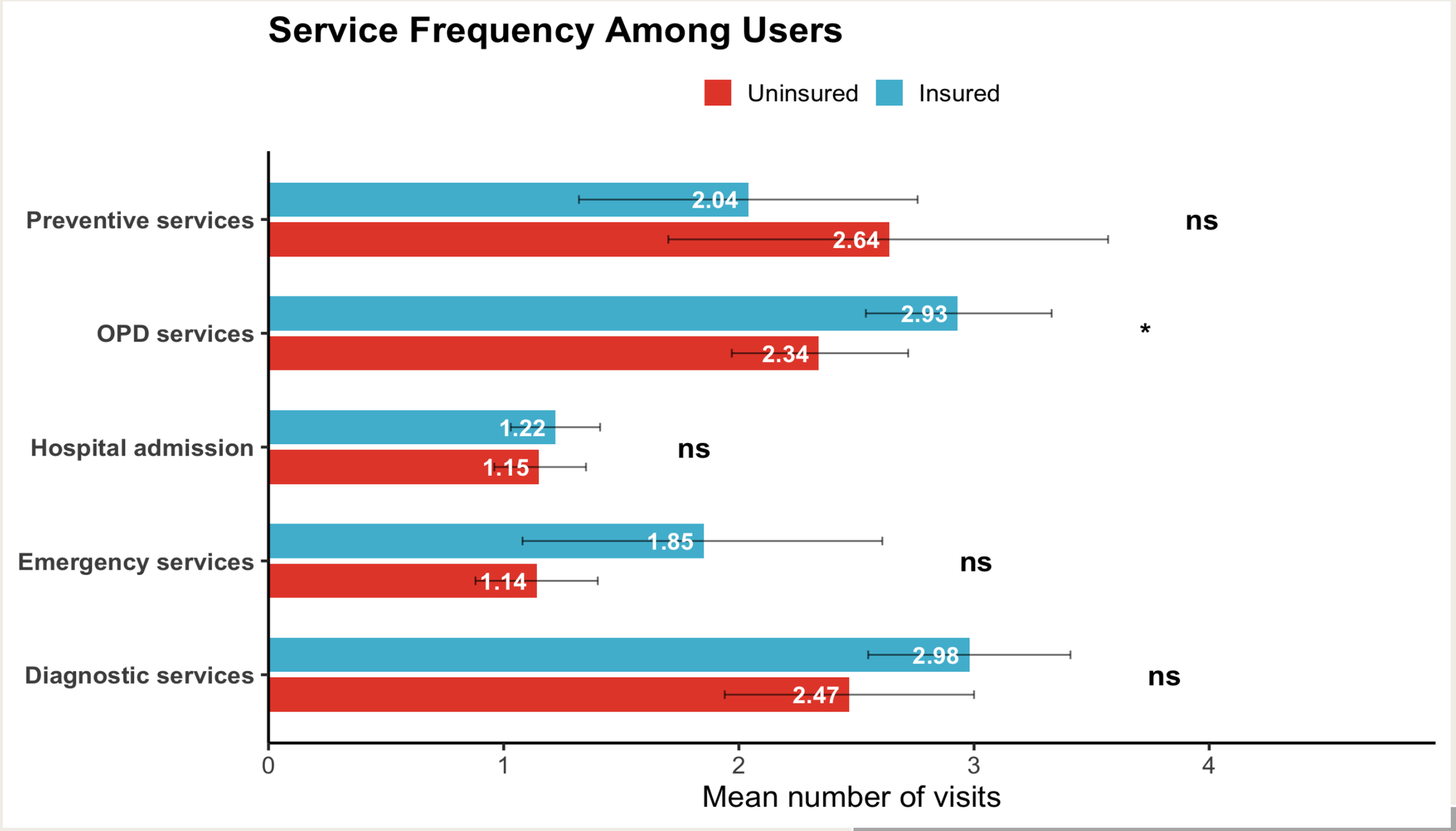
- Insurance significantly increases curative service use but has no effect on preventive care.

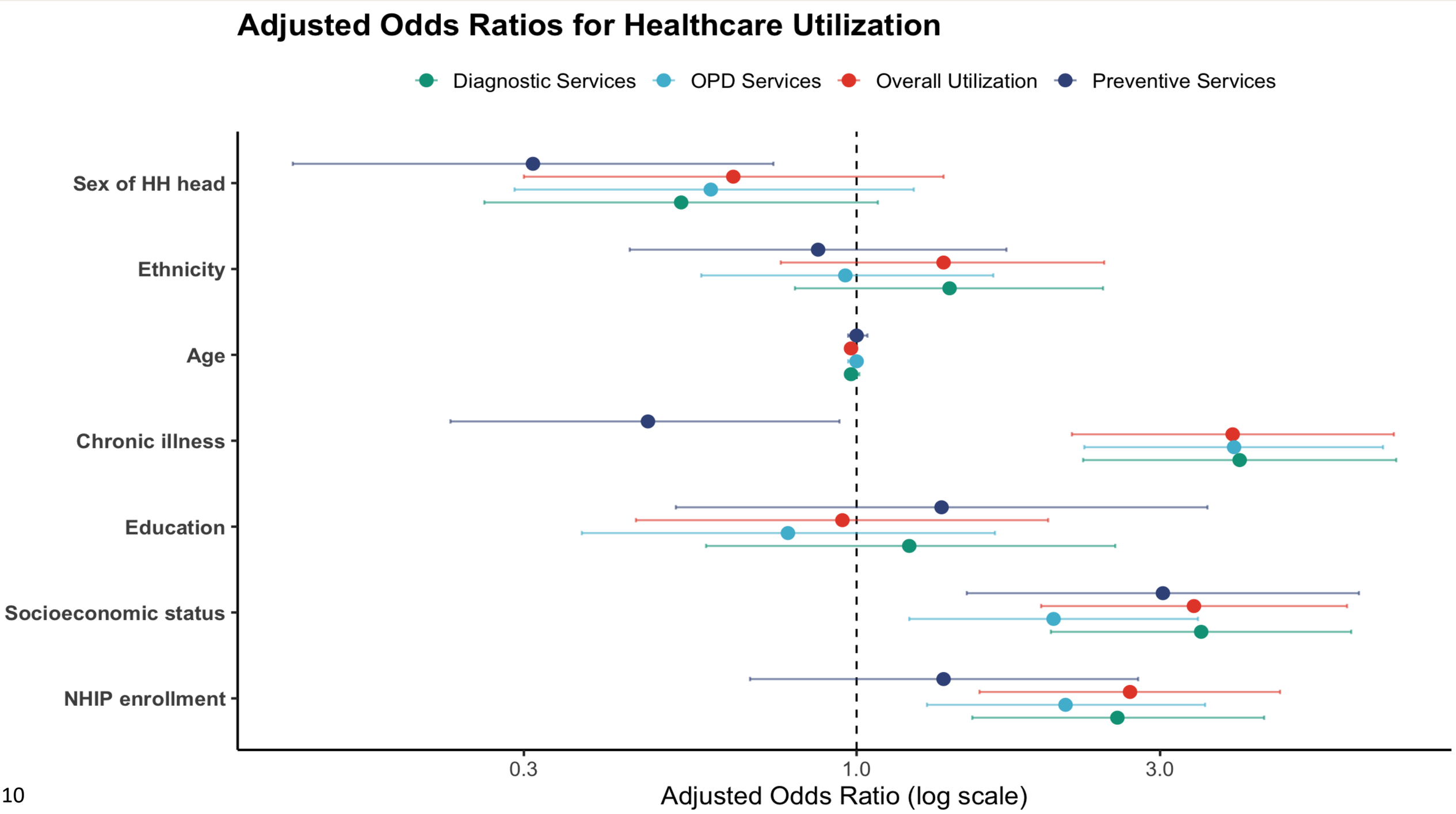
Results



Survey-weighted prevalence of overall healthcare utilization by NHIP status

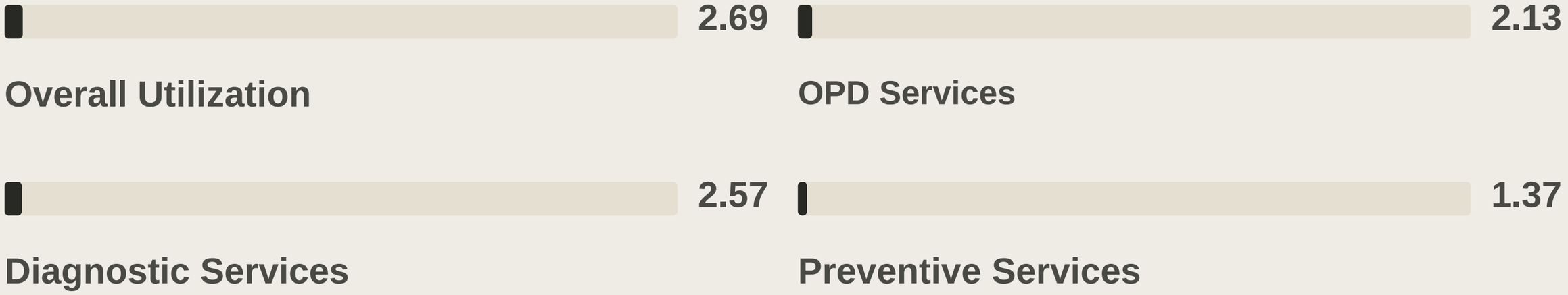
Results


Service Frequency Among Users
Uninsured
Insured
Preventive services
2.04
2.64
ns
OPD services
2.93
2.34
*
Hospital admission
1.22
1.15
ns
Emergency services
1.85
1.14
ns
Diagnostic services
2.98
2.47
ns
0
1
2
3
4
Mean number of visits


Adjusted Odds Ratios for Healthcare Utilization
Diagnostic Services
OPD Services
Overall Utilization
Preventive Services
Sex of HH head
Ethnicity
Age
Chronic illness
Education
Socioeconomic status
NHIP enrollment
0.3
1.0
3.0
Adjusted Odds Ratio (log scale)

NHIP Enrollment Is a Strong Independent Predictor of Utilization

Adjusted Odds Ratios for Healthcare Utilization



- NHIP enrollment (aOR 2.69), chronic illness (aOR 3.90), and higher SES (aOR 3.39) are the strongest predictors of curative care use.

Conclusion: Takeaway Messages

Key Findings

Curative Care Access

NHIP increases utilization 2.7-fold.

Preventive Care Gap

No effect on preventive services.

Socioeconomic Barriers

Higher-SES households are 3.4x more likely to use services.

Adverse Selection

Enrollment favors chronically ill and privileged populations.

Urgent Reforms Needed

1. **Timely Provider Payments**
2. **Include Preventive Care in Benefits**
3. **Targeted Enrollment for Disadvantaged Populations**

Acknowledgment

Gratitude

We thank the participating households, Central Department of Public Health, Suryabinayak Municipality Office, the Health Insurance board, and everyone else who made this research possible.

Presenter Bio

- Early career public health researcher
- Bachelor’s in Public Health graduate from CDPH, IOM
- Public Health Officer, Government of Nepal
- Research focused on health systems strengthening, universal health coverage, and equity in healthcare access in resource-constrained settings.

Gaurab Bhattarai
Gaurab7.bhattarai7@gmail.com

THANK YOU