Where you live matters: how degree of urbanization influences healthcare utilization in Portugal

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Introduction

- The degree of urbanization affects not only exposure to risk factors but also the organization of health services and enables healthcare utilization.

- Urbanization has increased 6% in Portugal in the last decade and more than 60% of the population lives in urban areas.

- **How does the degree of urbanization impact healthcare utilization in Portugal?**

- First national study dedicated to this association.

United Nations Population Division. World Urbanization Prospects: 2018 Revision. Urban population (% of total population) - Portugal.
Yohan F, Delphine P, Béatrice F, Isabelle RC, Jean-Yves B, Françoise D, et al. Beyond the map: evidencing the spatial dimension of health inequalities.
Int J Health Geogr. 2020;19(1):1–11.
Soleimanvandiazar N, Mohaqeqi Kamal SH, Sajjadi H, Ghaedamini Harouni G, Karimi SE, Djalalinia S, et al. Determinants of outpatient health service utilization according to andersen's behavioral model: A systematic scoping review. Iran J Med Sci. 2020;45(6):405–24.

Methods

Figure 1. Sample flowchart

- Exposure: degree of urbanization DEGURBA - Cities (densely populated areas), Towns and suburbs (intermediate density areas), Rural areas (thinly populated areas)
- 6 healthcare utilization outcomes
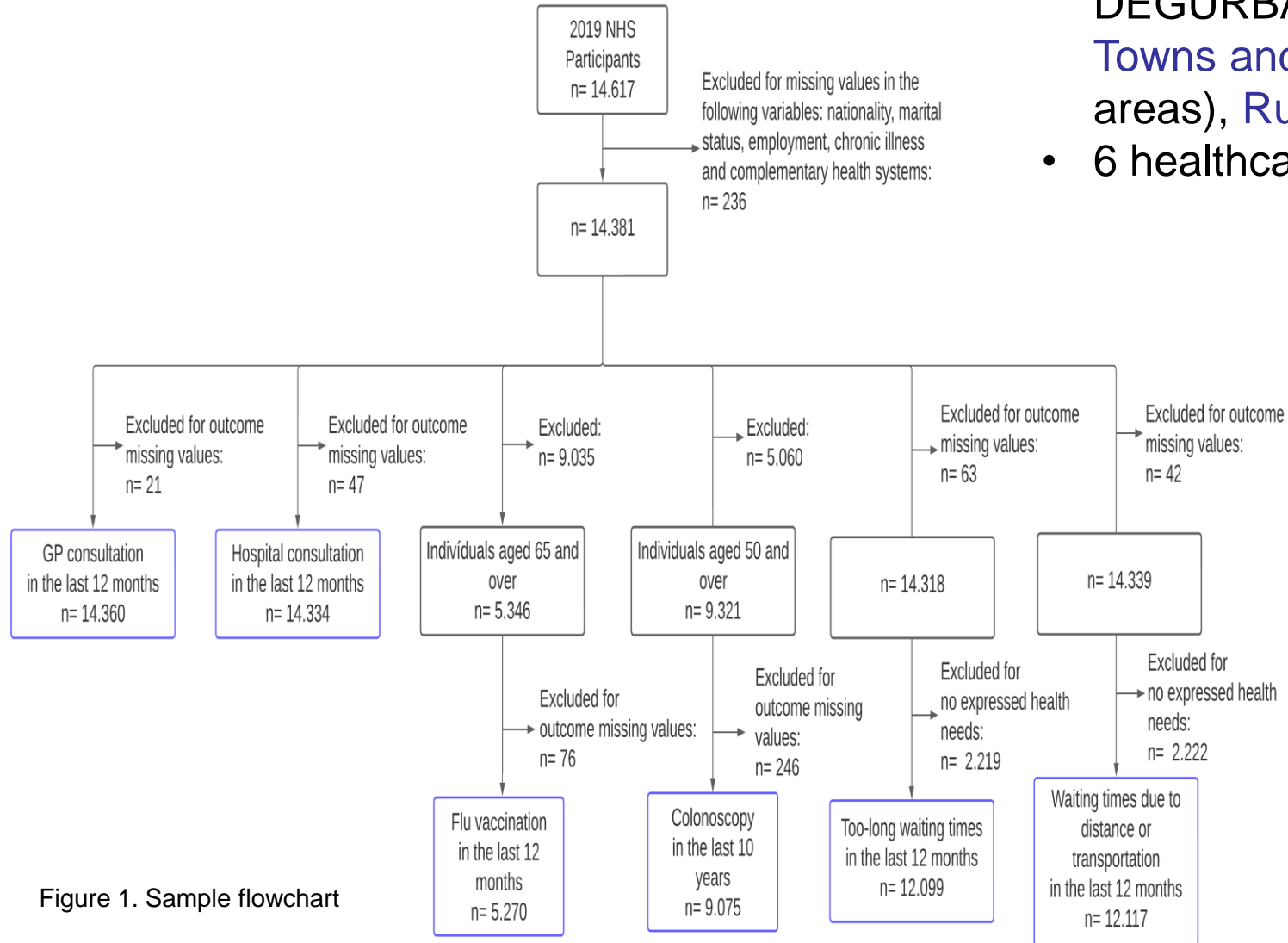
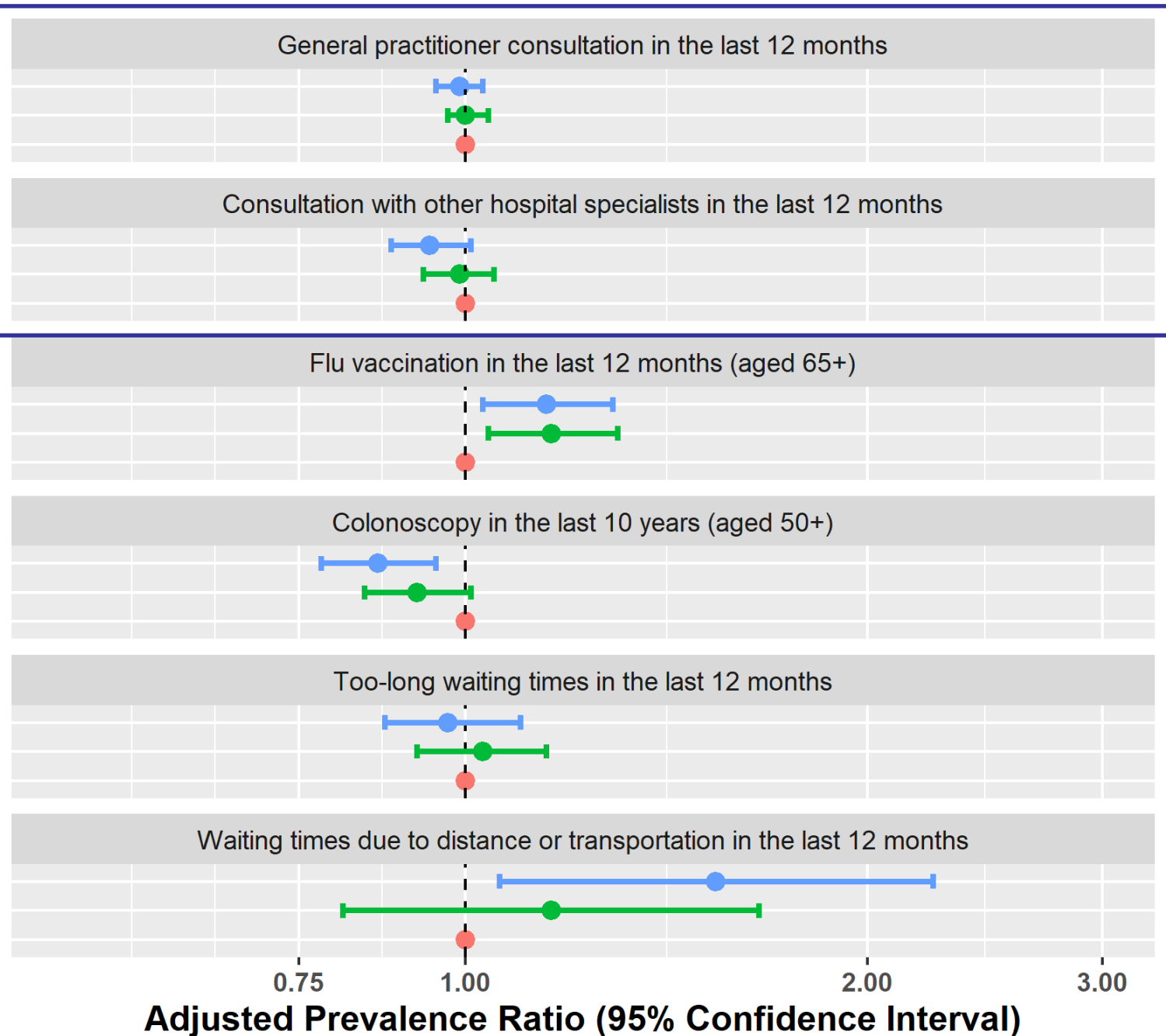- Study design: Cross-sectional
- Population: Participants over the age of 15
- Sampling: Multi-stage clustered stratified sample
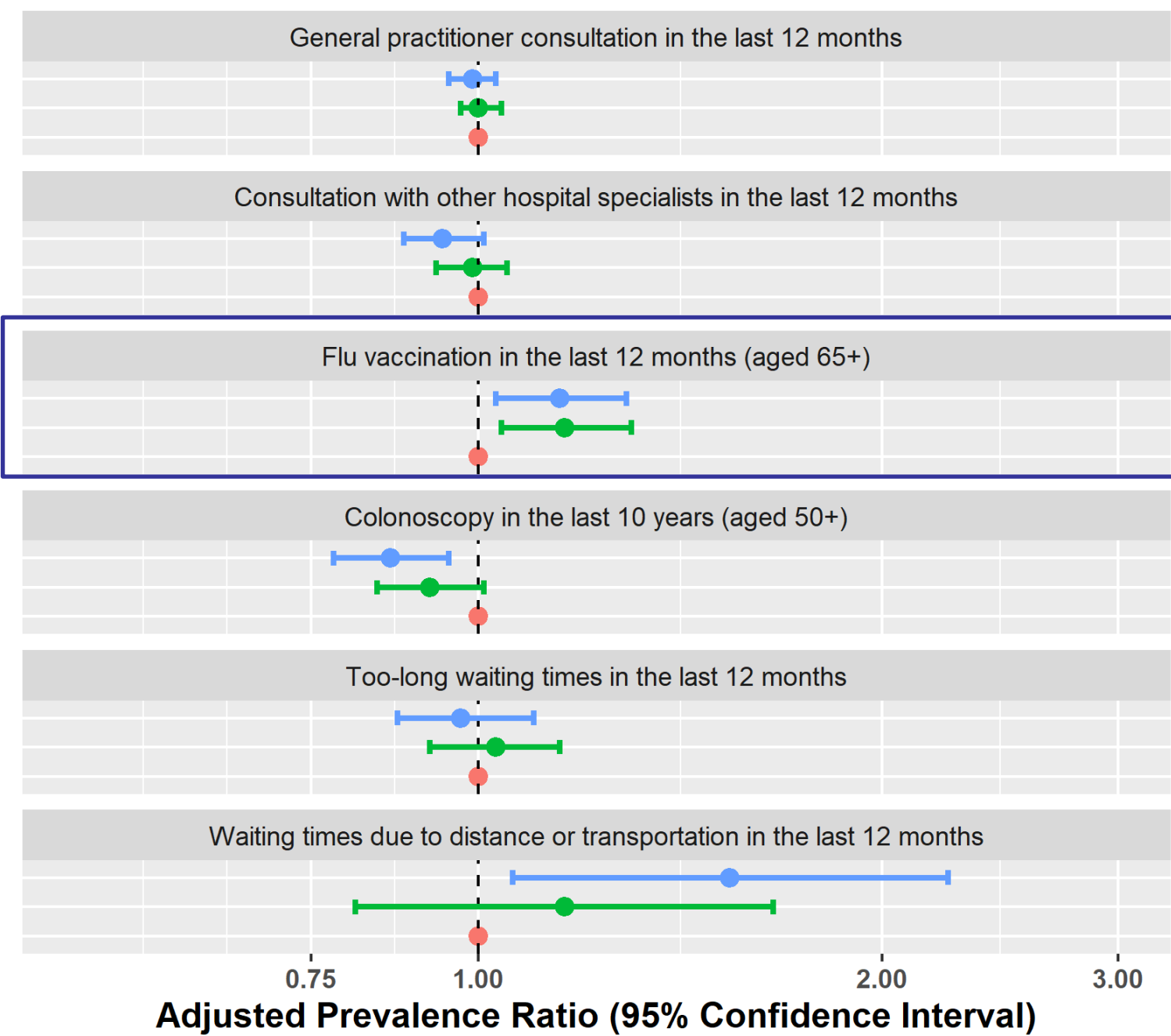- Measure of association: prevalence ratio (Poisson regression models)

Results

- **No significant associations** between urbanization and GP or specialist consultations.

Degree of Urbanization

- Thinly populated areas (rural)
- Intermediate density areas (suburban)
- Densely populated areas (urban)

Adjustment variables: sex, age group, nationality, education level, marital status, employment, household income, chronic illness, complementary health insurance, region.

General practitioner consultation in the last 12 months

Consultation with other hospital specialists in the last 12 months

Flu vaccination in the last 12 months (aged 65+)

Colonoscopy in the last 10 years (aged 50+)

Too-long waiting times in the last 12 months

Waiting times due to distance or transportation in the last 12 months

Adjusted Prevalence Ratio (95% Confidence Interval)
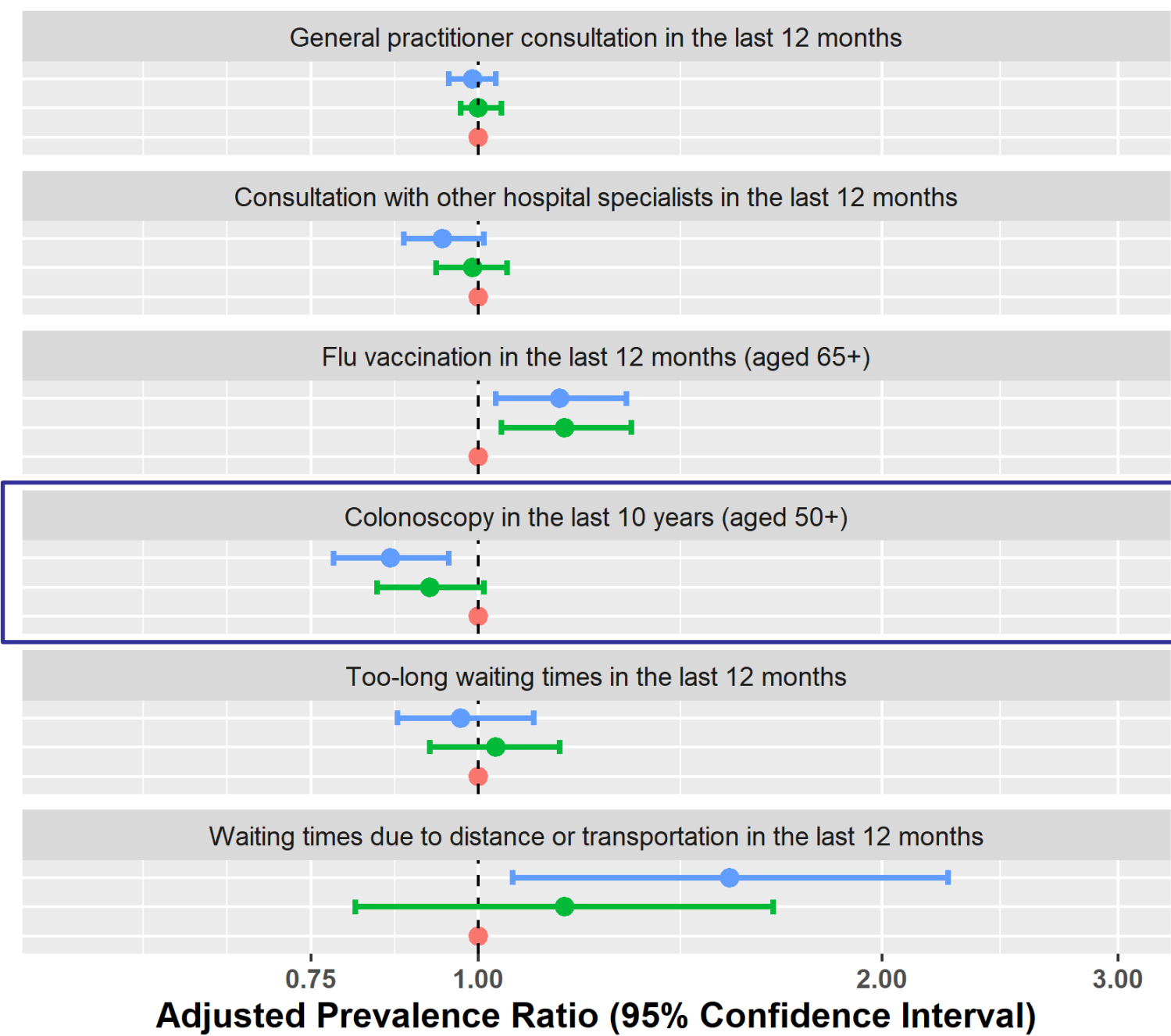
0.75   1.00   2.00   3.00

4

Degree of Urbanization

- Thinly populated areas (rural)
- Intermediate density areas (suburban)
- Densely populated areas (urban)

- **aPR (rural)= 1.15 (1.03-1.29)**
- Living in less populated areas represented a 15% higher likelihood of undertaking flu vaccination.
- **aPR (suburban)= 1.16 (1.04-1.30)**

- 45% flu immunization rate in people aged over 65, below recommendations.

Adjustment variables: sex, age group, nationality, education level, marital status, employment, household income, chronic illness, complementary health insurance, region.

Chart categories (top to bottom):
- General practitioner consultation in the last 12 months
- Consultation with other hospital specialists in the last 12 months
- Flu vaccination in the last 12 months (aged 65+)
- Colonoscopy in the last 10 years (aged 50+)
- Too-long waiting times in the last 12 months
- Waiting times due to distance or transportation in the last 12 months

X-axis: 0.75 1.00 2.00 3.00

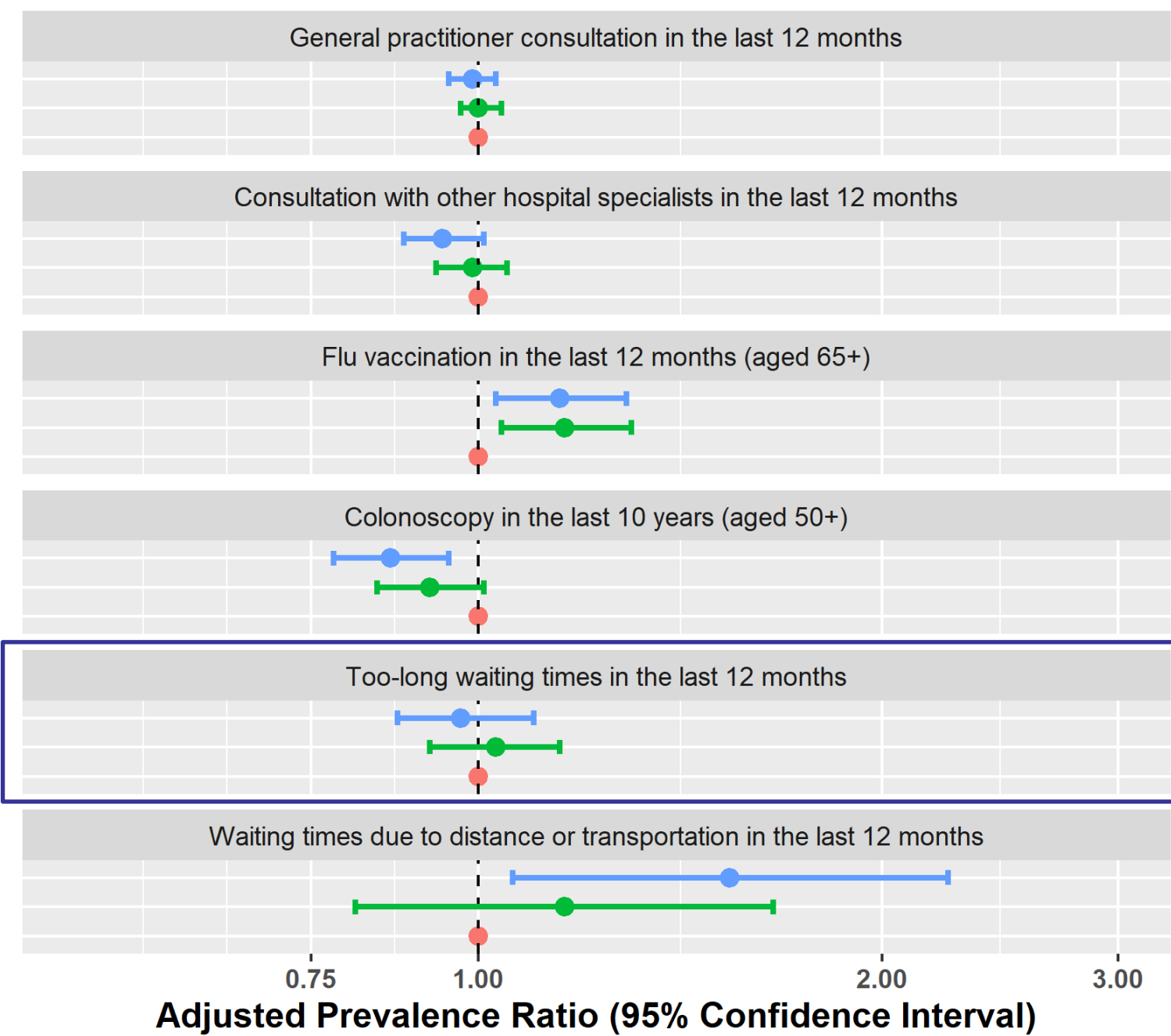**Adjusted Prevalence Ratio (95% Confidence Interval)**

5

Degree of Urbanization
- Thinly populated areas (rural)
- Intermediate density areas (suburban)
- Densely populated areas (urban)

- **aPR= 0.86 (0.78-0.95)**
- Living in less populated areas represented a 14% lower likelihood of colonoscopy utilization.

Adjustment variables: sex, age group, nationality, education level, marital status, employment, household income, chronic illness, complementary health insurance, region.

6

Degree of Urbanization

- Thinly populated areas (rural)
- Intermediate density areas (suburban)
- Densely populated areas (urban)

Adjustment variables: sex, age group, nationality, education level, marital status, employment, household income, chronic illness, complementary health insurance, region.

- No significant association between urbanization and excessive waiting times.

- 1/3 of people with expressed unmet health needs reported waiting too long for healthcare, higher than the average in Europe.

7

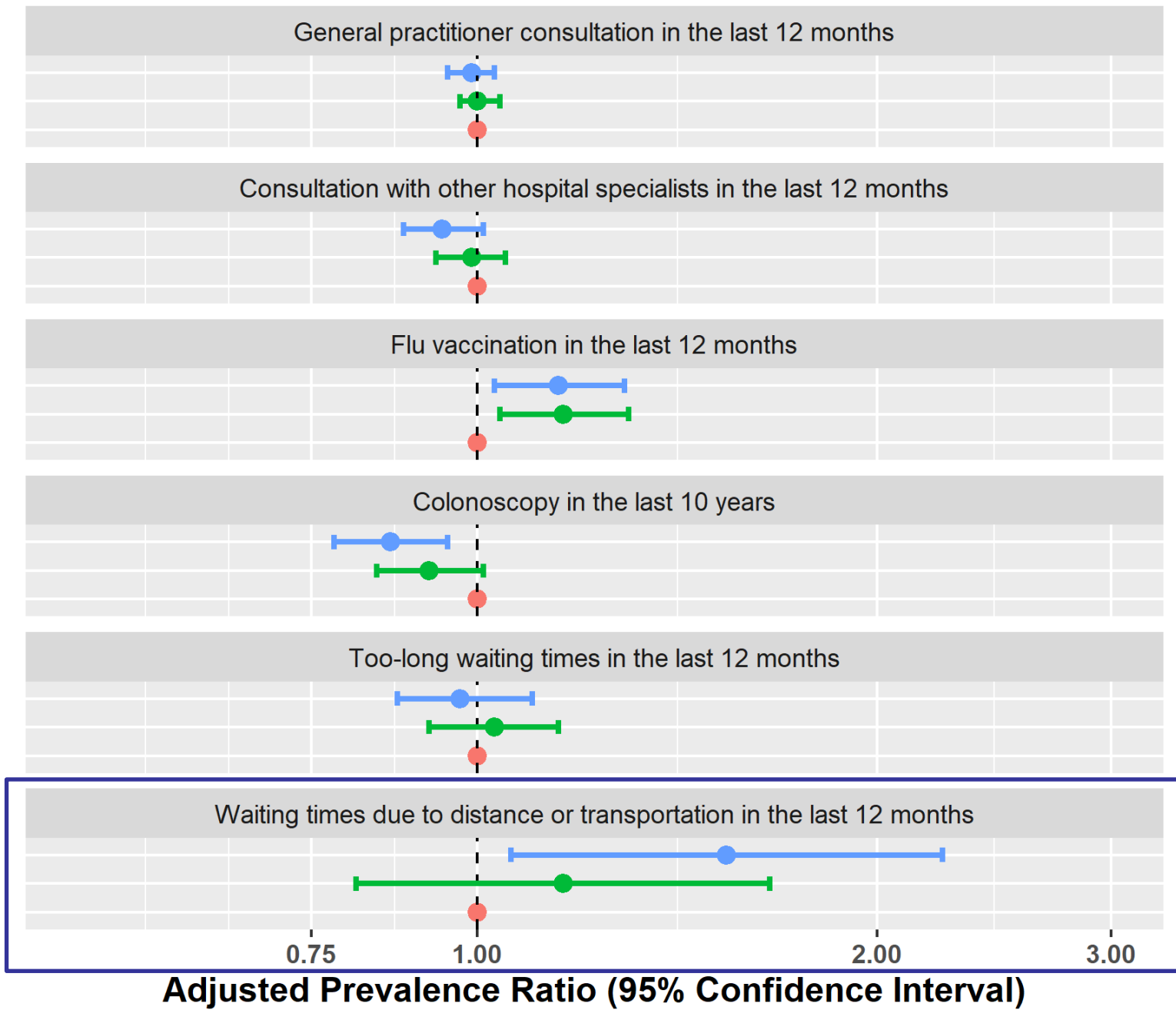**Adjusted Prevalence Ratio (95% Confidence Interval)**

Degree of Urbanization

- Thinly populated areas (rural)
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Adjustment variables: sex, age group, nationality, education level, marital status, employment, household income, chronic illness, complementary health insurance, region.

- **aPR= 1.54 (1.06-2.24)**
- Living in less populated areas represented a 54% higher likelihood of waiting times due to distance/transportation.

8

Discussion

- For most outcomes, the observed effect seemed to be gradative.

- Rural populations had worse values for half of the outcomes, one outcome had similar values and two observed better results.

- These areas faced challenges due to geographical barriers and limited mobility which must be solved to reach an equitative health system.

- Less access to healthcare can result and be aggravated by a positive feedback loop where the worsening health status of the population pressures the health system even more.

WHO. Imbalances in rural primary care, a scoping literature review with an emphasis on the WHO European Region. Tech Ser Prim Heal Care [Internet]. 2018; Available from: https://apps.who.int/iris/bitstream/handle/10665/346351/WHO-HIS-SDS-2018.58-eng.pdf?sequence=1

Conclusion and Recomendations

1. <u>Infrastructure Investment</u> (particularly primary healthcare)

2. In Rural Areas:
   – Health professionals recruitment and retaining;
   – Health education campaigns and mobile providers to increase colonoscopy utilization;
   – Mobility solutions (mobile healthcare units, transport expansion and alternatives, telemedicine).

3. <u>Targeted Immunization Campaigns</u> in Urban Areas

4. <u>Policy Reevaluation</u>

WHO. Imbalances in rural primary care, a scoping literature review with an emphasis on the WHO European Region. Tech Ser Prim Heal Care [Internet]. 2018; Available from: https://apps.who.int/iris/bitstream/handle/10665/346351/WHO-HIS-SDS-2018.58-eng.pdf?sequence=1