Poverty and intersecting inequities in access to and utilization of health services: insights from a nationally representative survey

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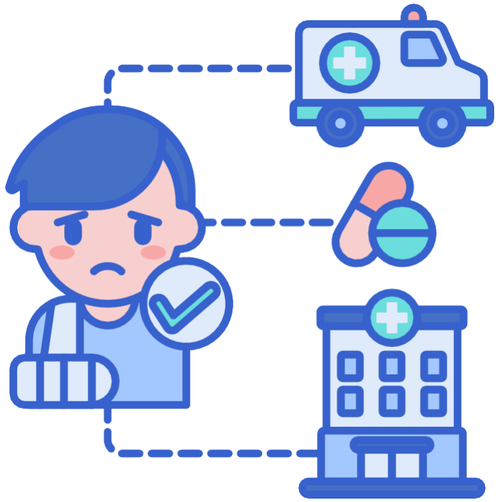
Background I



- **Distance decay effect in 77% of 108 studies**

Access to MNH services can prevent

- **27,116 newborn deaths**
- **16,424 stillbirths**
- **2,208 maternal by 2030**

Inequities in Access to services

Inequities in Service Utilization

Inequities in Health Outcomes/Impacts

References:

- Kelly C, Hulme C, Farragher T, Clarke G. Are differences in travel time or distance to healthcare for adults in global north countries associated with an impact on health outcomes? A systematic review. BMJ open. 2016;6(11):e013059.
- NHSSP 2019
- UNICEF 2021

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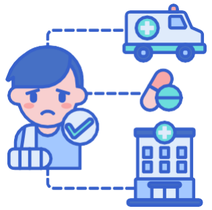
Background II: Health Inequities in Nepal



Inequities in Access to services

Inequities in Service Utilization

Inequities in Health Outcomes/Impacts

66% of lowest quintile participants report distance as problem

Difference of five folds

13% of richest quintile participants report distance as problem

65% of poorest quintile women deliver in health facility

Difference of 32% points

97% of richest quintile women deliver in health facility

NMR 26 Among lowest wealth quintile participants

Difference of two folds

NMR 13 Among richest wealth quintile participants

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Objectives

Objective 1

- To assess the variation in access to and utilization of health services by province, poverty status and urban rural setting

Objective 2

- To assess how province, poverty and urban rural setting interact with each other to determine access to and utilization of health services

Methods

Data sources

- Nepal Living Standard Survey 2022
- Survey undertaken by National Statistics Office

Sample size and sampling strategy

- A total of 9600 households, representing all seven provinces
- Two stage stratified sampling, with the census enumeration areas (EAs) forming the primary sampling units (PSUs)
- After household listing operation, twelve households were randomly selected from each EA

Methods

Survey Methodology

- Based on The World Bank’s Living Standards Measurement Survey (LSMS) methodology

Data management and analysis

- Descriptive analysis: percentage and mean
- Inferential analysis: Logistic regression

Methods

Outcome variable

- Access to health facility within 30 min of travel time
- Self reported adequacy of health service utilization

Intersecting variables

- **Province:** Seven provinces as outlined in Constitution of Nepal
- **Poverty:** Considers revised official poverty line of estimated at NRs. 72,908 per person per year set in 2022 23. This represents the aggregate of the food and the non food poverty lines.
- **Urban/Rural setting**: As per standard classification, rural municipality classified as rural setting while metropolitan, sub etropolitan and urban municipalities classified as urban setting.

Key results

Nepal

- 30 Min to public HF: 80%
- Mean distance in km: 3.3
- Adequate service utilization: 78%

Sudurpaschim

30 Min to public HF : 74
Mean distance in KM: 3.3
Adequate utilization: 74

Karnali

30 Min to public HF: 63
Mean distance in KM: 3
Adequate utilization: 73

Gandaki

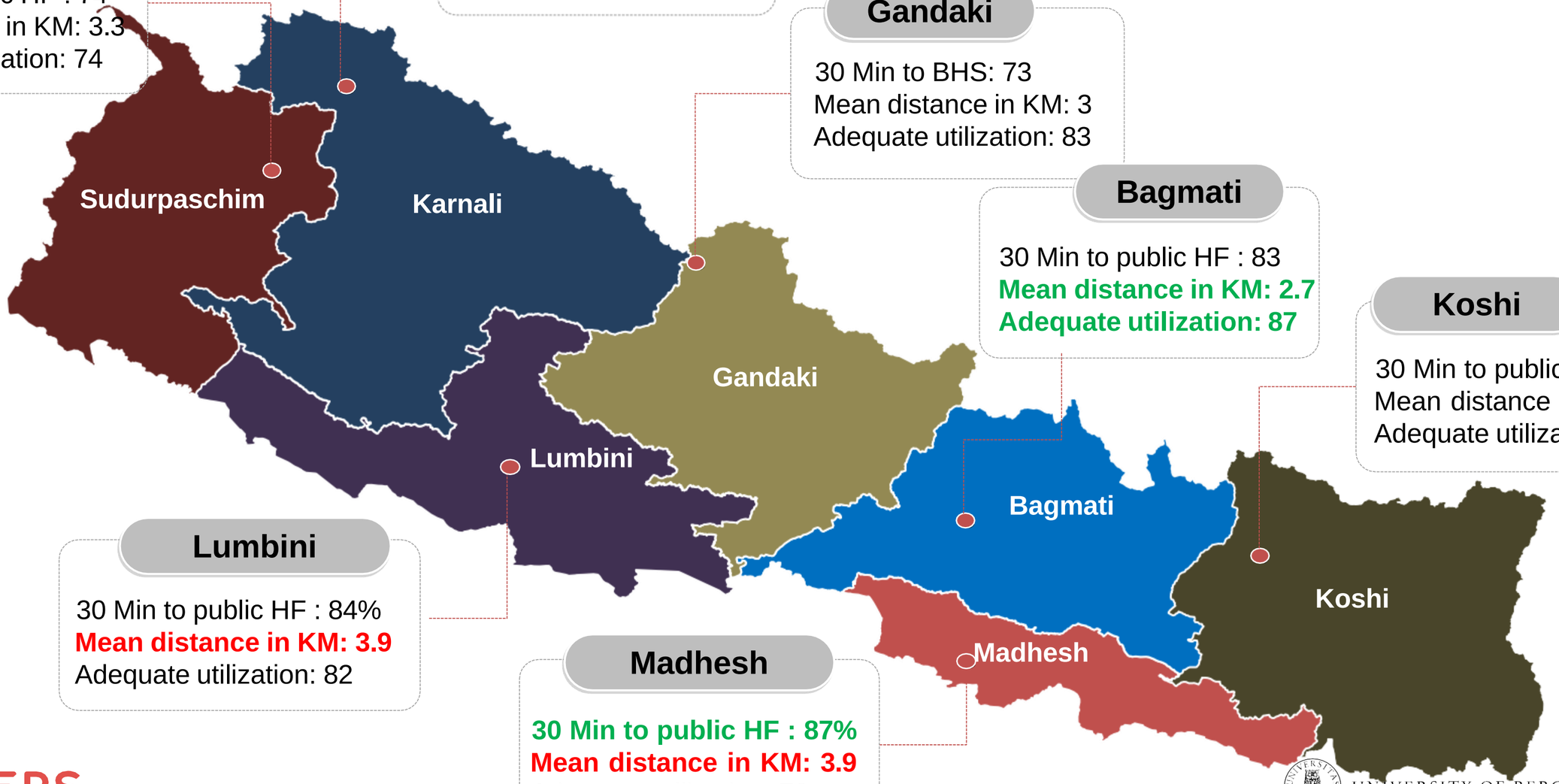
30 Min to BHS: 73
Mean distance in KM: 3
Adequate utilization: 83

Bagmati

30 Min to public HF : 83
Mean distance in KM: 2.7
Adequate utilization: 87

Koshi

30 Min to public HF : 74%
Mean distance in KM: 3.3
Adequate utilization: 77



Lumbini

30 Min to public HF : 84%
Mean distance in KM: 3.9
Adequate utilization: 82

Madhesh

30 Min to public HF : 87%
Mean distance in KM: 3.9
Adequate utilization: 72

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Key Results

Urban

- 30 Min to public HF : 86
- Mean distance in KM: 2.72
- Adequate utilization: 82

Rich

- 30 Min to public HF : 82
- Mean distance in KM: 3.2
- Adequate utilization: 84

Rural

- 30 Min to public HF : 65
- Mean distance in KM: 4.7
- Adequate utilization: 73

Poor

- 30 Min to public HF : 68
- Mean distance in KM: 4.8
- Adequate utilization: 57

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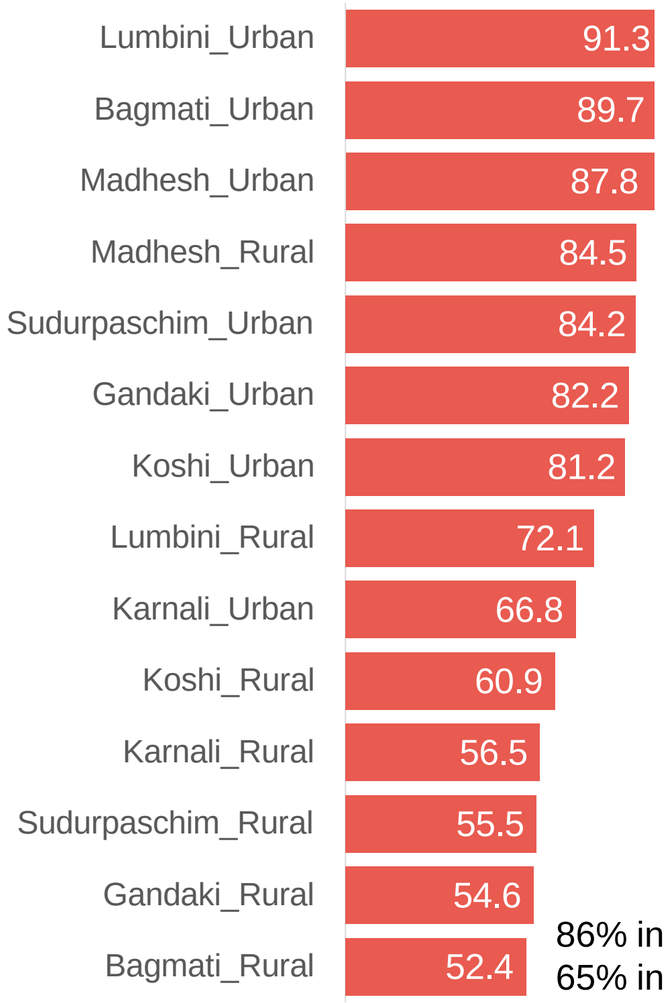
Intersectionality analysis Province and urban/rural setting

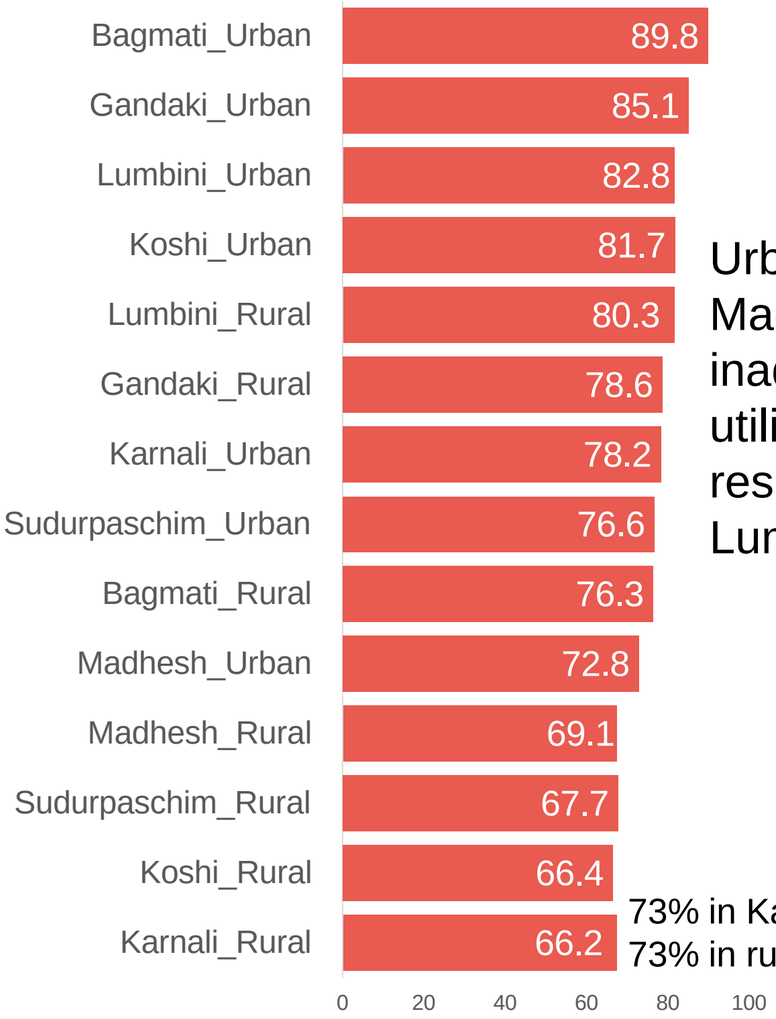
Access to services



All 13 intersecting strata have better access to health services than rural setting in Bagmati

86% in Bagmati
65% in rural

Adequacy of service utilization



Urban residents in Madhesh have inadequate service utilization than rural residents of Gandaki, Lumbini and Bagmati

73% in Karnali
73% in rural

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Intersectionality analysis Province and urban/rural setting

Access to services

Characteristics	Odds ratio
Bagmati Urban	Ref
Bagmati Rural	0.36 (0.26, 0.52)
Gandaki Urban	0.65 (0.44, 0.95)
Gandaki Rural	0.42 (0.27, 0.63)
Karnali Urban	0.41 (0.28, 0.58)
Karnali Rural	0.22 (0.16, 0.31)
Koshi Urban	0.50 (0.37, 0.69)
Koshi Rural	0.22 (0.17, 0.30)
Lumbini Urban	0.54 (0.36, 0.83)
Lumbini Rural	0.46 (0.32, 0.65)
Madhesh Urban	0.30 (0.22, 0.41)
Madhesh Rural	0.25 (0.19, 0.34)
Sudurpaschim Urban	0.37 (0.27, 0.50)
Sudurpaschim Rural	0.24 (0.17, 0.33)

Bagmati Rural
87%
Lower odds

Gandaki Rural
86%
Lower odds

Sudurpaschim Rural
86%
Lower odds

Karnali Rural
85%
Lower odds

Adequacy of service utilization

Characteristic	OR (95% CI)
Bagmati Urban	Ref
Bagmati Rural	0.13 (0.07, 0.22)
Gandaki Urban	0.53 (0.27, 1.06)
Gandaki Rural	0.14 (0.07, 0.26)
Karnali Urban	0.23 (0.12, 0.44)
Karnali Rural	0.15 (0.08, 0.28)
Koshi Urban	0.50 (0.25, 0.97)
Koshi Rural	0.18 (0.09, 0.34)
Lumbini Urban	1.20 (0.56, 2.60)
Lumbini Rural	0.30 (0.14, 0.63)
Madhesh Urban	0.83 (0.39, 1.77)
Madhesh Rural	0.62 (0.28, 1.40)
Sudurpaschim Urban	0.61 (0.28, 1.34)
Sudurpaschim Rural	0.14 (0.08, 0.27)

Koshi Rural
78%
Lower odds

Karnali rural
78%
Lower odds

Madhesh Rural
76%
Lower odds

Sudurpaschim Rural
75%
Lower odds

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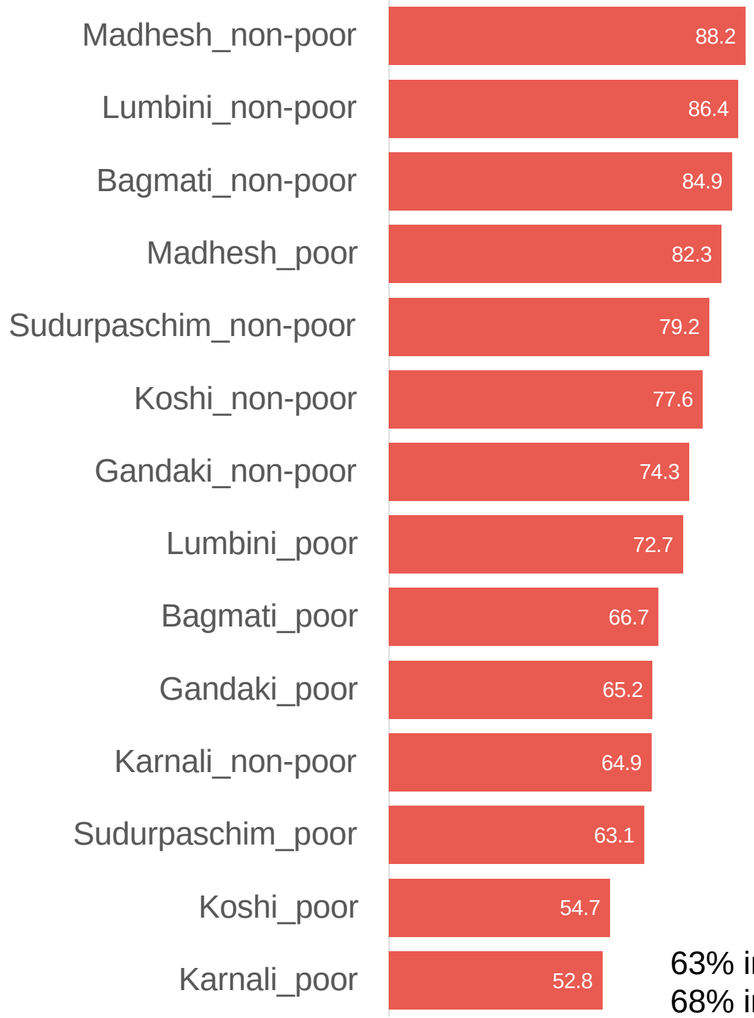
Intersectionality analysis province and poverty

Access to services

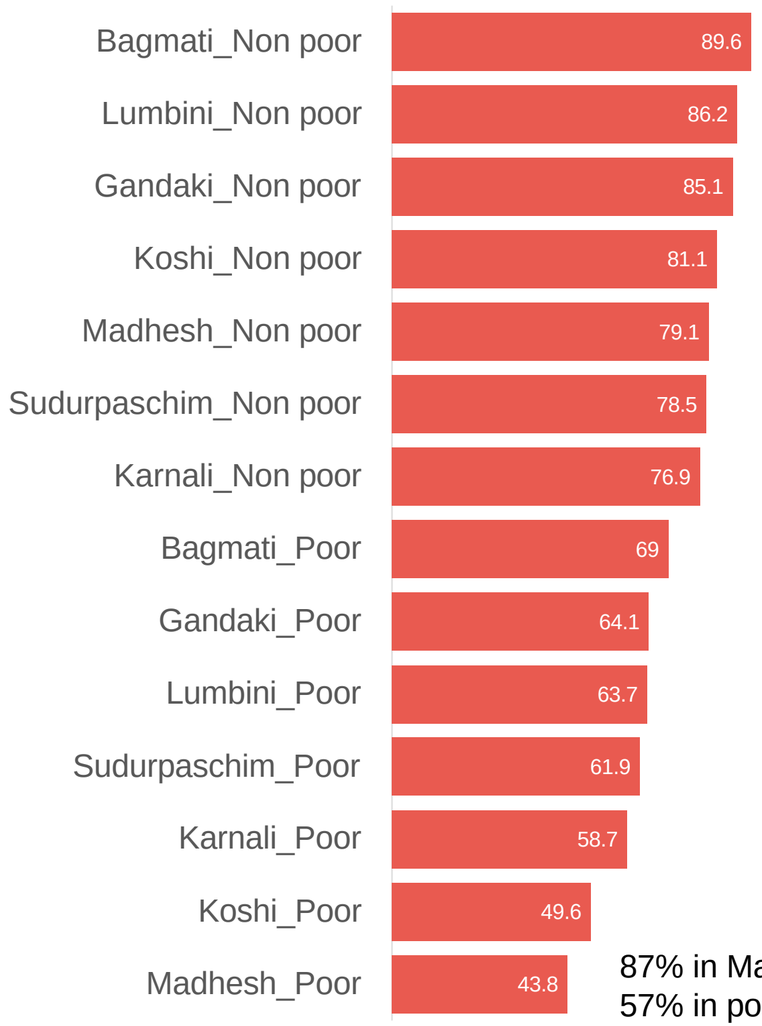


Less proportion of poor in Bagmati reach nearest government facility within 30 min than non poor in Sudurpaschim

The Koshi poor and Karnali poor have similar proportion

63% in Karnali
68% in poor

Adequacy of service utilization



Higher proportion of non poor in Bagmati have adequate health service utilization and

The proportion is lowest among Madhesh poor, despite having relatively better access

87% in Madhesh
57% in poor

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Access to health services

Access to services

Intersecting Characteristic	OR (95% CI)
Bagmati non poor	Ref
Bagmati poor	0.36 (0.23, 0.56)
Gandaki non poor	0.51 (0.33, 0.79)
Gandaki poor	0.33 (0.19, 0.58)
Karnali non poor	0.33 (0.21, 0.51)
Karnali poor	0.20 (0.11, 0.35)
Koshi non poor	0.62 (0.40, 0.96)
Koshi poor	0.22 (0.13, 0.37)
Lumbini non poor	1.13 (0.65, 1.95)
Lumbini poor	0.47 (0.26, 0.85)
Madhesh non poor	1.33 (0.76, 2.32)
Madhesh poor	0.83 (0.39, 1.75)
Sudurpaschim non poor	0.68 (0.42, 1.09)
Sudurpaschim poor	0.30 (0.19, 0.48)***

Karnali Poor
80%
Lower odds

Koshi Poor
78%
Lower odds

Sudurpaschim Poor
70%
Lower odds

Gandaki and Karnali Poor
67%
Lower odds

Adequacy of service utilization

characteristic	OR (95% CI)
Bagmati Non poor	Ref
Bagmati Poor	0.26 (0.18, 0.37)
Gandaki Non poor	0.67 (0.49, 0.91)
Gandaki Poor	0.21 (0.13, 0.33)
Karnali Non poor	0.39 (0.29, 0.52)
Karnali Poor	0.17 (0.12, 0.24)
Koshi Non poor	0.50 (0.39, 0.64)
Koshi Poor	0.11 (0.07, 0.18)
Lumbini Non poor	0.73 (0.54, 0.98)
Lumbini Poor	0.20 (0.14, 0.30)
Madhesh Non poor	0.44 (0.34, 0.57)
Madhesh Poor	0.09 (0.06, 0.13)
Sudurpaschim Non poor	0.42 (0.32, 0.56)
Sudurpaschim Poor	0.19 (0.13, 0.27)

Madhesh poor
91%
Lower odds

Koshi Poor
89%
Lower odds

Karnali Poor
83%
Lower odds

Sudurpaschim poor
81%
Lower odds

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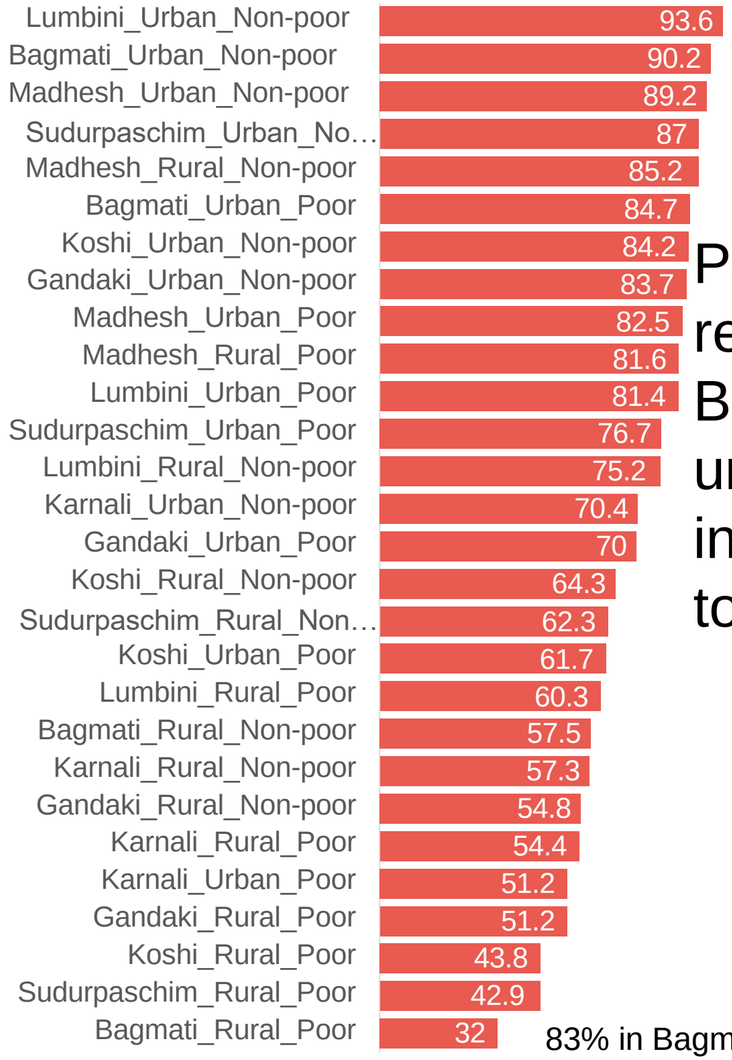
Intersectionality analysis province, urban/rural setting and poverty

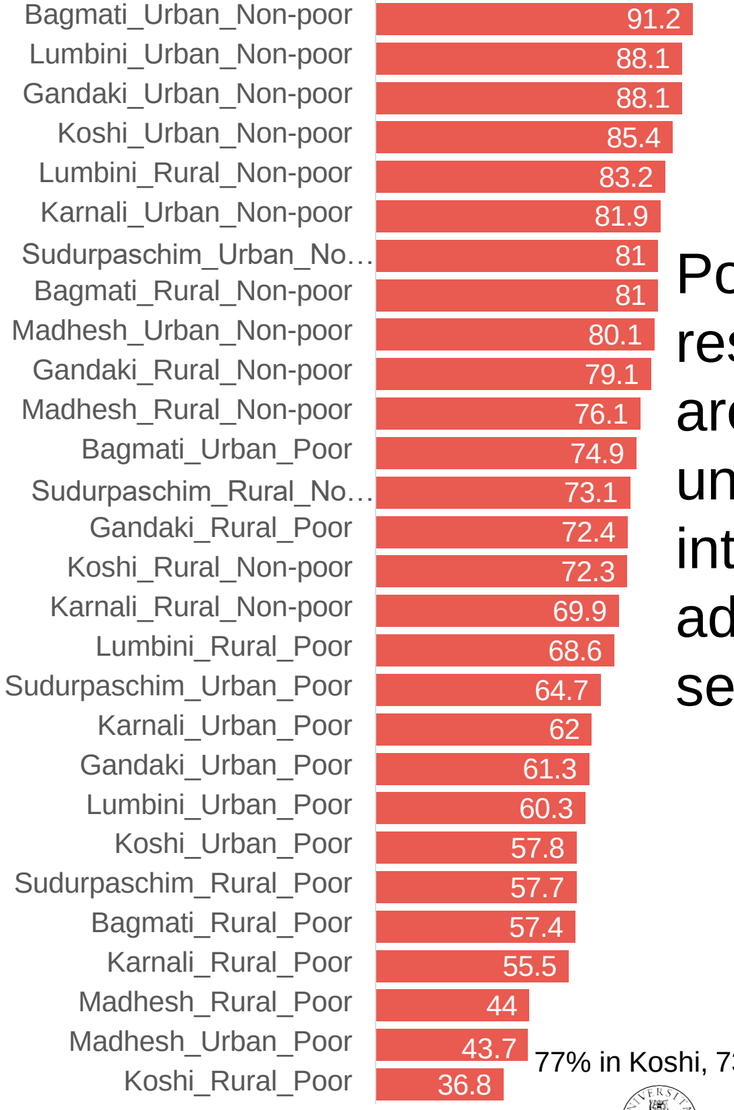
Access to services



Poor rural residents of Bagmati are most underprivileged interms of access to services

83% in Bagmati, 65% in rural, 68% in poor,

Adequacy of service utilization



Poor rural residents of Koshi are most underprivileged interms of adequacy of service utilization

77% in Koshi, 73% in rural, 57% among poor

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Intersectionality analysis province, urban/rural setting and poverty

Access to services

	OR (95% CI)
Bagmati non poor Urban	—
Bagmati non poor Rural	0.15 (0.08, 0.26)
Bagmati poor Urban	0.60 (0.33, 1.12)
Bagmati poor Rural	0.05 (0.02, 0.11)
Gandaki non poor Urban	0.56 (0.28, 1.14)
Gandaki non poor Rural	0.13 (0.07, 0.25)
Gandaki poor Urban	0.25 (0.12, 0.55)
Gandaki poor Rural	0.11 (0.05, 0.28)
Karnali non poor Urban	0.26 (0.13, 0.50)
Karnali non poor Rural	0.15 (0.08, 0.28)
Karnali poor Urban	0.11 (0.05, 0.27)
Karnali poor Rural	0.13 (0.06, 0.28)
Koshi non poor Urban	0.58 (0.30, 1.14)
Koshi non poor Rural	0.20 (0.10, 0.38)
Koshi poor Urban	0.18 (0.08, 0.41)
Koshi poor Rural	0.08 (0.04, 0.17)
Lumbini non poor Urban	1.60 (0.72, 3.57)
Lumbini non poor Rural	0.33 (0.15, 0.71)
Lumbini poor Urban	0.48 (0.21, 1.08)
Lumbini poor Rural	0.16 (0.07, 0.38)
Madhesh non poor Urban	0.90 (0.41, 1.94)
Madhesh non poor Rural	0.63 (0.28, 1.43)
Madhesh poor Urban	0.51 (0.19, 1.41)
Madhesh poor Rural	0.48 (0.17, 1.40)
Sudurpaschim non poor Urban	0.73 (0.33, 1.64)
Sudurpaschim non poor Rural	0.18 (0.09, 0.36)
Sudurpaschim poor Urban	0.36 (0.16, 0.83)
Sudurpaschim poor Rural	0.08 (0.04, 0.15)

Bagmati rural poor

95%

Lower odds

Koshi Rural Poor

92%

Lower odds

Gandaki Rural Poor

89%

Lower odds

Karnali Rural Poor

89%

Lower odds

Adequacy of service utilization

characteristic	Odds ratio
Bagmati Urban Non poor	
Bagmati Urban Poor	0.29 (0.18, 0.46)
Bagmati Rural Non poor	0.41 (0.28, 0.59)
Bagmati Rural Poor	0.13 (0.07, 0.23)
Gandaki Urban Non poor	0.71 (0.46, 1.08)
Gandaki Urban Poor	0.15 (0.09, 0.26)
Gandaki Rural Non poor	0.36 (0.24, 0.55)
Gandaki Rural Poor	0.25 (0.09, 0.67)
Karnali Urban Non poor	0.43 (0.29, 0.65)
Karnali Urban Poor	0.16 (0.10, 0.26)
Karnali Rural Non poor	0.22 (0.15, 0.32)
Karnali Rural Poor	0.12 (0.07, 0.20)
Koshi Urban Non poor	0.56 (0.40, 0.78)
Koshi Urban Poor	0.13 (0.07, 0.23)
Koshi Rural Non poor	0.25 (0.18, 0.35)
Koshi Rural Poor	0.06 (0.03, 0.10)
Lumbini Urban Non poor	0.71 (0.46, 1.10)
Lumbini Urban Poor	0.15 (0.09, 0.24)
Lumbini Rural Non poor	0.48 (0.33, 0.69)
Lumbini Rural Poor	0.21 (0.12, 0.38)
Madhesh Urban Non poor	0.39 (0.28, 0.54)
Madhesh Urban Poor	0.07 (0.05, 0.12)
Madhesh Rural Non poor	0.31 (0.21, 0.45)
Madhesh Rural Poor	0.08 (0.04, 0.13)
Sudurpaschim Urban Non poor	0.41 (0.29, 0.58)
Sudurpaschim Urban Poor	0.18 (0.11, 0.29)
Sudurpaschim Rural Non poor	0.26 (0.17, 0.39)
Sudurpaschim Rural Poor	0.13 (0.08, 0.21)

Koshi Rural Poor

94%

Lower odds

Madhesh urban poor

93%

Lower odds

Madhesh Rural Poor

92%

Lower odds

Bagmati &Karnali Rural Poor

87%

Lower odds

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Conclusions

01

Inequities become more severe when more than one form of marginalization co occur.

02

Upto 3 folds difference in proportion of people reaching health facility within 30 min of travel time.

01

Despite policy commitment, half of population in rural setting of four provinces (out of seven) can not reach health facilities within 30 min.

02

Blanket approach of setting up infrastructure and expanding them may not be useful

Take home message

01

Drawing inference based on only one factor could lead to misleading conclusions

02

Blanket approach of setting up infrastructure and expanding them may not be useful from equity perspective. Need to consider intersectionality

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