Factors affecting health facility delivery in rural Nawalparasi, Nepal

Preeti K. Mahato (PhD student) Faculty of Health & Social Sciences, Bournemouth University, UK

Introduction:
Safe delivery means giving birth in the presence of skilled birth attendants (SBA) at health facilities where basic obstetric care is available preferably with midwives as the main providers and emergency obstetric care for women with complications treated at hospitals with skilled doctors as the main providers. In Nepal, both percentage of women giving birth at health facilities and the proportion of birth attended by skilled birth attendants is very low.

This research investigates factors related to health facility delivery in two levels of care in Nepal: primary health care and tertiary health care facilities.

Methods:
A cross-sectional household survey was conducted in seven Nepali villages near the Indian border. Descriptive analysis along with chi-square test and multinomial logistic regression was used to identify the predictors of institutional delivery.

- **Explanatory variables**
  - Individual
    - Age at women
    - Caste
    - Religion
    - Age at marriage
    - Women’s education
    - Occupation
    - Husband’s education
    - Occupation
    - Women’s literacy
    - Electricity at home
    - Radio at home
    - Television at home
    - Roof material
    - Motorcycle/scooter
    - Land owned
  - Health services
    - Time to reach health centre
    - Decision maker for place of delivery
    - Person assisting delivery
    - Received financial assistance
  - Maternal/obstetric
    - Age at first pregnancy
    - Number of pregnancies
    - Timing of first pregnancy
    - Planning of pregnancy
    - Frequency of antenatal checkup

- **Outcome variables**
  - Individual
    - Home/on way
    - Primary care facilities
    - Maternal/obstetric
    - Hospitals/clinics

Multinomial logistic regression of factors affecting place of delivery

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<thead>
<tr>
<th>Variables</th>
<th>Primary health centre vs Home/on way</th>
<th>Hospitals/clinics vs Home/on way</th>
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</table>
| Age of respondent (years)  
15-19 | 2.15 (0.73, 6.29) | 2.87* (1.19, 6.98) |
| 20-22 | 0.89 (0.38, 2.10) | 1.38 (0.70, 2.73) |
| 25-29 | 1.34 (0.57, 3.13) | 1.25 (0.62, 2.51) |
| Time to reach health facility (Ref one hour)  
Less than one hour | 2.18* (1.09, 4.36) | 0.92 (0.58, 1.47) |
| Caste of respondent  
Ref (advantaged group) | 0.33* (0.14, 0.77) | 0.54 (0.25, 1.15) |
| Husband’s education  
Ref (Secondary+) | 0.74 (0.29, 1.85) | 0.37** (0.10, 0.98) |
| Literacy of respondent  
Ref (illiterate) | 0.66 (0.30, 1.40) | 0.46* (0.25, 0.84) |
| Radio at home  
Ref (No) | 2.61* (1.20, 5.66) | 2.36*** (1.19, 4.69) |
| Television at home  
Ref (No) | 1.92* (1.05, 3.51) | 1.05 (0.65, 1.67) |
| Have a motorcycle/scooter  
Ref (No) | 1.03 (0.48, 2.19) | 1.87* (1.05, 3.35) |
| Timing of 1st antenatal check  
Ref (Don’t want to disclose) | 1.0 (0.14, 7.27) | 0.87 (0.17, 4.43) |
| Decision maker for place of delivery  
Ref (Family members/others) | 0.14*** (0.05, 0.39) | 0.17*** (0.08, 0.35) |
| Frequency of ANC visit  
Ref (4 or more) | 2.19*** (1.20, 4.00) | 1.87** (1.16, 3.01) |

| p<0.05, **p<0.01, ***p<0.001 OR – Odds Ratio CI – Confidence Interval |

Conclusions:
- Women have less control over place of birth than family members. Such decisions are made especially by husbands.
- The importance of having four or more ANC visits.
- Inequity in utilisation of delivery services at health institutions as showed by low utilisation by disadvantaged caste.
- Level of literacy determines uptake of delivery services.
- Availability of health institutions one hour walking distance and focusing on education should be focus of government.

Results:
- Women who resided ≤1 hour from health facility were twice as likely to deliver in primary health centre compared to home/on the way than those who resided an hour or more away (OR 2.18, p 0.027).
- Odds of advantaged caste attending primary health centres are 1/0.33 = 3.03 times more than for disadvantaged caste.
- Women whose husbands were illiterate (OR 0.37 p 0.009) or had only primary education (OR 0.46, p 0.01) were significantly less likely compared to women with husbands with secondary level education to give birth at hospitals/clinics compared to home/on way.
- Literacy of women: no significant association with place of delivery.
- Odds of women (whose husbands were farmers) delivering at both the primary care centre/hospital compared to delivering at home/on way were respectively 0.39 (p 0.009) and 0.42 (p 0.003) times lower than women whose husbands’ were unskilled.
- Respondents were more likely to deliver both at primary health centres (OR 2.61, p 0.015) and hospital (OR 2.36, p 0.014) than delivering at home/on way if they owned a radio than those who did not.
- Similarly, those with television (OR 1.92, p-value 0.034).
- Women whose husbands were decision makers for place of delivery had increased odds of delivering at both primary health centres (OR 2.19, p 0.01) and hospitals/clinics (OR 1.87, p 0.10) than women whose family members/others were decision makers.
- Respondents who had 1-3 ANC visits instead of 4 or more had lower odds for giving birth at primary health facility than at home/on way.

Health services, Obstetric and Maternal characteristics

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<tr>
<th>Characteristics</th>
<th>Frequency (n)</th>
<th>Percentage</th>
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| Time to reach health centre  
Less than one hour | 628 | 66.2 |
| One hour and above | 156 | 24.9 |
| Don’t know/ didn’t disclose | 56 | 8.9 |
| Decision maker place birth  
Woman | 103 | 16.5 |
| Husband | 273 | 43.7 |
| Family members/others | 249 | 39.8 |
| Person assisting delivery  
Skilled health professionals | 341 | 55.0 |
| Unskilled people and others | 279 | 45.0 |
| Financial assistance birth  
Yes | 216 | 35.0 |
| No | 401 | 65.0 |
| Age at first pregnancy  
Below 15 | 619 | 3.9 |
| 15-19 | 278 | 44.9 |
| 20 and above | 317 | 51.2 |
| Total pregnancies | 627 | 82.8 |
| 1-3 | 519 | 82.8 |
| 4 and above | 108 | 17.2 |
| Timing first pregnancy check up  
First trimester | 627 | 42.7 |
| Second and third trimester | 294 | 46.9 |
| Didn’t disclose | 65 | 10.4 |
| Last pregnancy | 622 | 90.4 |
| Planned | 562 | 90.4 |
| Unplanned | 60 | 9.6 |
| Frequency antenatal care  
Less than 4 | 376 | 59.9 |
| 4 and above | 107 | 8.8 |
| Don’t prefer to disclose | 57 | 8.8 |

Highlights:
- % women giving birth at health facility very low in Nepal
- Determinants of health facility delivery was investigated at two levels of care: primary and tertiary care
- Women have less control /choice for place of birth
- Socio-economic inequity in utilisation of delivery services at health institutions exists
- Health facilities should be located within one-hour walking distance

Authors:
Preeti K Mahato
Edwin van Teijlingen
Padam Simkhada
Catherine Angell
Zoe A. Steppard
Ram Chandra Silwal

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