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peek vision

Equity in Eye Care Access: Sociodemographic Determinants of Referral Attendance in Nepal

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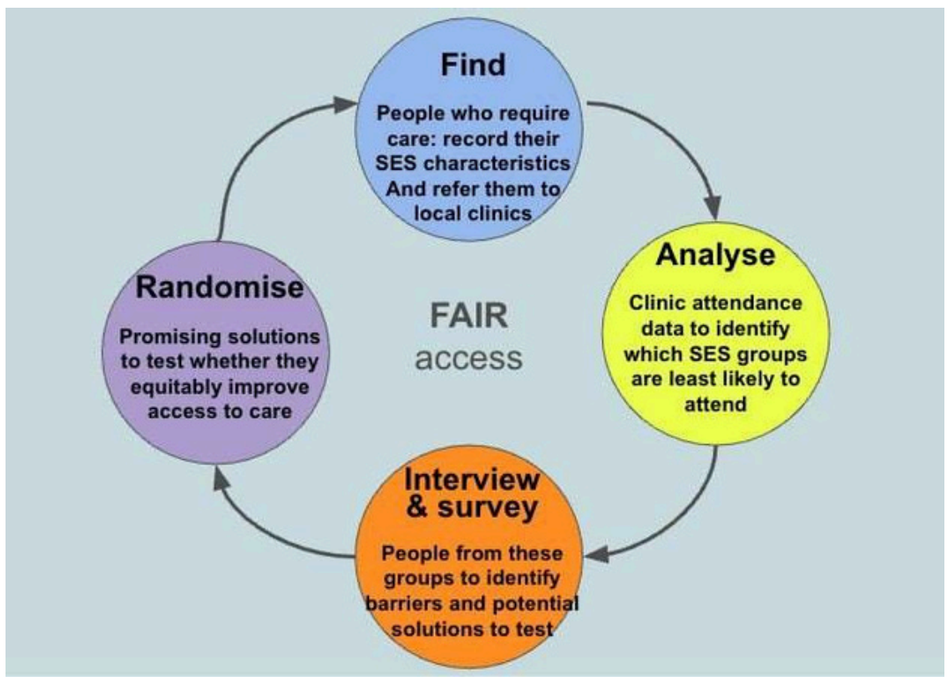
Part A: Context, Methodology and Results

Background:

Improving equitable access to community health services is crucial for achieving Universal Health Coverage (UHC) and fulfilling the "leave no one behind" promise of the Sustainable Development Goals.

The WHO's Thirteenth General Programme of Work recognizes that addressing persistent barriers to healthcare access is key to UHC progress[1].

Our collaborative research introduces the "IM-SEEN" approach ("Improvement studies for evidence-based and equitable innovation") to identify and resolve inequitable access to care. This approach involves identifying underserved groups, understanding their barriers, and testing potential solutions through embedded randomized controlled trials (RCTs) (Fig.1)



We are currently applying this model in community-based eye screening programs in Botswana, India, Kenya, and Nepal[2].

Aim:

To identify specific sociodemographic factors that significantly influence the likelihood of individuals attending follow-up eye care referrals after community-based screenings in Nepal.

Methods:

During 2021–2024, as part of Peek-powered eye screening programs, this longitudinal study was conducted by Nepal Netra Jyoti Sangh (NNJS).

Sociodemographic factors were identified through collaboration between local health authorities, professionals, and international experts from the International Centre for Eye Health at LSHTM and Peek Vision software and data insight teams. A questionnaire with 10 customisable questions was integrated into the digital screening workflow, allowing data linkage across different stages for the same individual. Variables included education, ethnicity, health insurance coverage, household size, income, marital status, occupation, housing assets (e.g., electricity, water supply, roof materials), transport items, access to in-house toilets, and smartphone ownership, as well as age, gender, location, eye conditions, and visual acuity.

The primary outcome was attendance at the next level of eye care referral, when required. Logistic regression models adjusted for age were used to calculate odds ratios (ORs) and 95% confidence intervals (CIs) for factors influencing referral attendance.

All participants provided informed consent, and data were handled per GDPR regulations, with results presented in anonymised, aggregated reports.

Results:

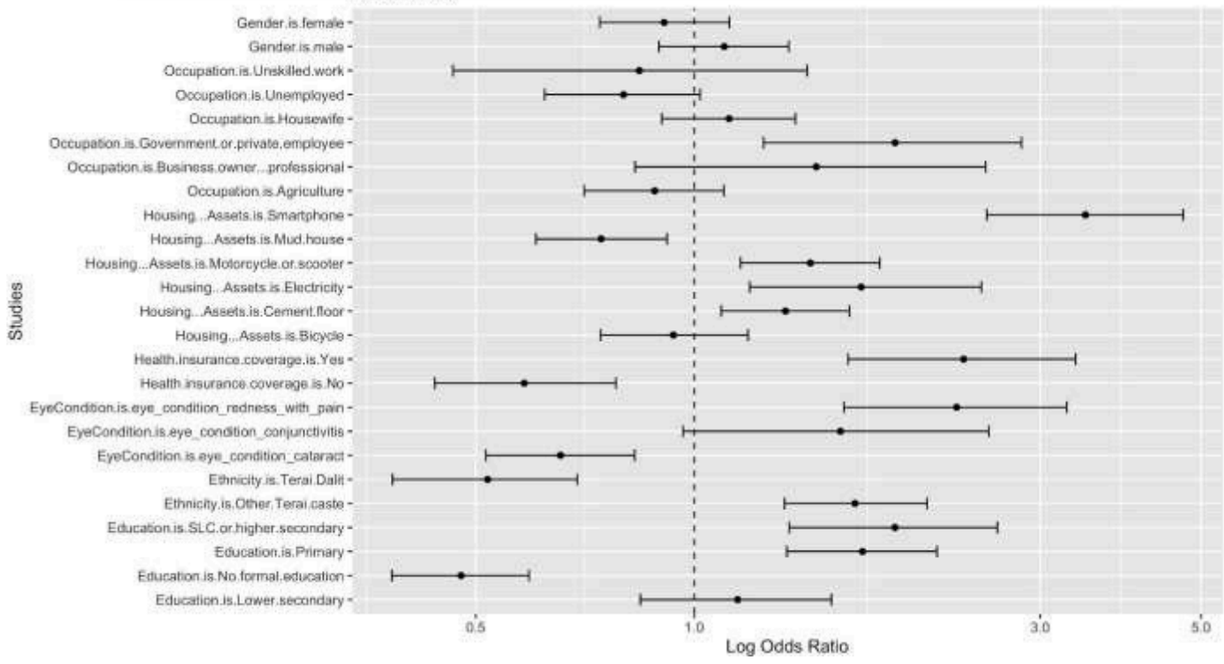
Among individuals with sociodemographic data, 13,875 were referred for further diagnosis or treatment; 3,388 (24.42%) attended as of 27 November 2024.

Attendance was lowest among those with no formal education (19.77%) compared to primary (27.23%), lower secondary (28.79%), and higher secondary education (30.80%). Ethnic groups such as Terai Janajati (11.65%) and other ethnicities (9.92%) had the lowest rates, while Newar had the highest (35.23%).

Attendance was lower for corneal opacity (5.56%) and night blindness (5.00%), inactive insurance (13.64%), and unemployed individuals (13.34%). Children living with guardians (7.50%) attended less than those with one parent (30.77%) or both parents (25.21%). Morang (7.98%) and Sarlahi districts (0.00%) had the lowest attendance. Rates for males (24.27%) and females (24.53%) were similar.

After adjusting for age, lack of formal education (OR: 0.53, 0.44-0.65), ethnicity Terai Dalit (OR: 0.7, 0.63- 0.83) and eye conditions Cataract (OR: 0.81, 0.73-0.89) were factors significantly associated with lower attendance (Fig. 2)

Fig 2. Adjusted odds ratios of attendance according to sociodemographic and economic factors.



Part B: Implication of Findings and Lessons Learned

This study provides critical insights into how sociodemographic factors influence eye care and follow-up adherence, offering a foundation for targeted interventions to improve equity in access to eye care services. By identifying these factors, the study aims to uncover inequities in eye care access and provide a basis for targeted interventions to improve attendance rates and ensure equitable delivery of eye health services in Nepal.

Upon identifying the socio-demographic group with the lowest referral adherence rate, specifically the Terai Dalits ethnicity with no formal education, the research team suggests targeting this group for interventions to improve their access to services.

Local research assistants are being trained to interview people from this group until thematic saturation is reached i.e. no new barriers or solutions emerge. In-person interviews was prefered over phone surveys due to the low phone ownership among the target population making this method an appropriate balance between representation and practicality.

Village-based workshops will be conducted with representatives from the identified groups to present and discuss proposed solutions. Participants will be asked to rank the interventions based on perceived impact, from most to least impactful.

Field staff use Peek Vision for community eye screenings, detecting vision issues early and ensuring timely referrals, especially in remote areas with limited eye care access. Credit: Ms. Rita Pradhan/ Nepal Netra Jyoti Sangh

References

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2. Allen LN, Nkomazana O, Mishra SK, Ratshaa B, Ho-Foster A, Rono H, Roshan A, Macleod D, Kim M, Marques AP, Bolster N. Sociodemographic characteristics of community eye screening participants: protocol for cross-sectional equity analyses in Botswana, India, Kenya, and Nepal. Wellcome Open Research. 2023 Nov 16;7:144.

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