

TRACHOMA BULLETIN

Trachoma Prevalence in Chitwan and Nawalparasi: The need for interventions

In Nepal, particular areas have been identified where there is a high prevalence of the blinding disease, trachoma. The Nepal Blindness Survey conducted by the Nepalese NGO, Nepal Netra Jyoti Sangh (NNJS, the leading eye health organization in Nepal), in 1981 found that 2.4% of all blindness in the country was caused by trachoma. Various other studies, including those conducted by Helen Keller International (HKI), also identified a high prevalence of trachoma in the districts of the Terai, especially in the Far Western Region.

What is trachoma?

Trachoma is an infectious disease of the eye, caused by the microorganism *Chlamydia Trachomatis*. The infection gives rise to inflammation, which can be seen as redness, discharge, follicles and swelling of the inner lining of the eyelids. After repeated infection, usually for several years in childhood, the inflammation causes scarring of the inner lining of the eyelid. Eventually, the eyelid will bend inwards and the eyelashes will touch the cornea. The subsequent and continuous rubbing of the eyelashes on the cornea causes white scarring to appear. The white scarring of the cornea leads to loss of vision and eventually to blindness.

Where is trachoma likely to be a problem?

Trachoma is usually found in rural areas where there is a severe lack of water and good hygiene is hard to maintain, especially where the climate is dry and the environment is dusty. Conditions that contribute to severe trachoma include lack of water and the consequent lack of facial cleanliness, the presence of flies that can transmit the microorganism, and crowding, which also facilitates spreading of the infection.

In collaboration with NNJS and two other local NGOs, the Environment, Culture, Agriculture Research and Development Society (ECARDS) and the Nepal National Social Welfare Association (NNSWA), HKI has been active in the prevention and treatment of trachoma since 1998, focusing particularly on school health in two districts of the Far Western Region – Kailali and Kanchanpur. In March-May 2001, HKI and NNJS conducted a survey to determine trachoma prevalence and risk factors in two other districts, Chitwan and Nawalparasi.

This HKI/Nepal Trachoma Bulletin contains general information on trachoma and on HKI's trachoma program in Nepal, and presents key findings from the survey in Chitwan and Nawalparasi as well as recommendations for controlling the disease in these two districts.

HKI's trachoma program in Nepal

Apart from the above-mentioned NGOs and HKI, other organizations involved in blindness prevention are the Nepal Red Cross Society, the Swiss Red Cross, local eye hospitals, and other NGOs and government agencies.



Signs & different stages of trachoma

Trachomatous Inflammation – Follicular (TF): The presence of five or more white dots (follicles) in the inner lining of the central upper eyelid (tarsal conjunctiva).

Trachomatous Inflammation – Intense (TI): The inner surface of the upper eyelids becomes so inflamed that it is difficult to see the blood vessels.

Trachomatous Scarring (TS): The presence of easily visible scarring in the central upper eyelid.

Trachomatous Trichiasis (TT): At least one eyelash rubs on the eyeball.

Corneal Opacity (CO): Eye looks white and easily visible corneal opacity over the pupil.

SAFE Strategy

The World Health Organization (WHO) endorsed a four-part strategy called SAFE to control and reduce trachoma as a blinding disease. In SAFE, S stands for Surgery, A for Antibiotics, F for Facial cleanliness and E for Environmental improvements. Surgical and antibiotic treatment (S and A) are curative measures, whereas facial cleanliness and environmental improvement (F and E) are preventive measures.

As mentioned above, HKI has been conducting its Trachoma Reduction and School Health Program in Kailali and Kanchanpur since 1998, in close collaboration with its partner NGOs, and the District Education and Health Offices in each district. To control and reduce the prevalence of trachoma, HKI follows the WHO-recommended “SAFE” strategy (see box).

In previous years, HKI assisted NNJS and partner NGOs in organizing specially designated “Trachoma Days” on a semi-annual basis. This activity addresses the “S” (surgery) and “A” (antibiotic treatment) components of the SAFE strategy as free corrective surgery and antibiotic treatment were made available to populations with limited access to health services during these specially designated days. As Trachoma Days have now been integrated into the national blindness prevention program and are being sustained through the involvement of local NGOs, HKI is now focusing its trachoma work on school children, as this is not currently being addressed by

other NGOs or government programs. The school health program is focuses on the “F” (facial cleanliness) and “E” (environmental improvement) components of the SAFE strategy.

HKI started the school health program at the beginning of 2000 in 50 schools in four Village Development Committees (VDCs) in Kailali and Kanchanpur, in close collaboration with the District Education Office (DEO), NNSWA and ECARDS. A school health curriculum has been developed and is taught in all these schools. Based on the experiences and successes so far (such as improvements in the face washing practices of children and the participation of the school management in improving sanitation and hygiene in the schools), HKI expanded the program to 50 more schools in four more VDCs in the same districts in 2001.

Schools provide unique opportunities for hygiene education. Lessons taught in classes on trachoma and practices in the appropriate use of facilities provide basic knowledge and skills to the students. Furthermore, students often share this experience with their families and further spread the knowledge and skills.

Figure 1. Prevalence of trachoma by district in all age groups. Bars indicate 95% Confidence Interval (CI) corrected for design effect.

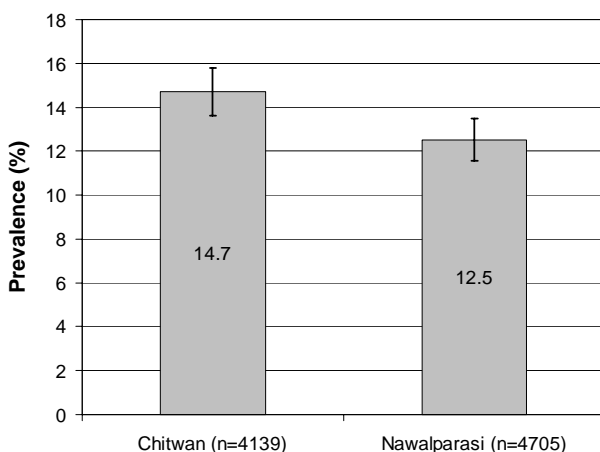
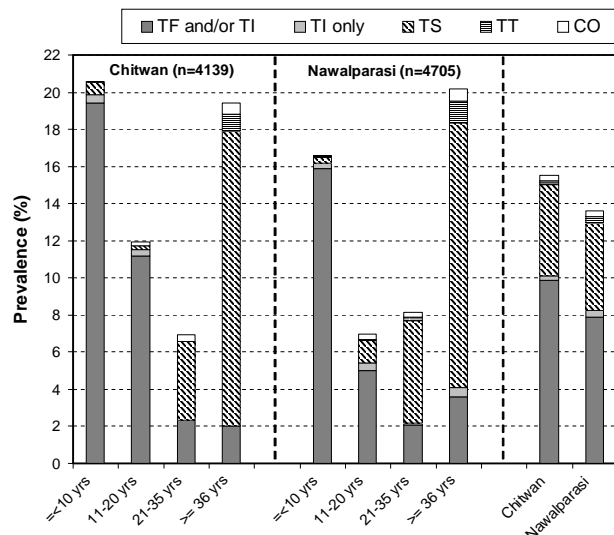


Figure 2. Prevalence of one or more signs of trachoma by age group and district.



Prevalence of trachoma in Chitwan and Nawalparasi

HKI, in collaboration with NNJS, conducted the trachoma prevalence survey in March-May 2001. A total of 4,319 people were selected from 815 households from 20 clusters (wards) in Chitwan, and 4,705 people from 785 households from 22 clusters in Nawalparasi. Clusters were selected by probability-proportional-to-size sampling and households by systematic sampling. Of the people present at the selected households, 85% were examined.

The survey found that the prevalence of trachoma (indicated by the presence of one or more signs of trachoma, including corneal opacity) was 14.7% in Chitwan and 12.5% in Nawalparasi (Figure 1). Prevalence in Chitwan was higher than in Nawalparasi (p<0.01).

Figure 2 presents the proportion of the different stages of trachoma that were detected by age group for each district. Active inflammatory trachoma (TF) was most common in the younger age groups. Among children aged 10 years and younger prevalence of TF was 19% in Chitwan and 15.5% in Nawalparasi. TS prevalence was very low among 11-20 year olds (<1.3%), but higher among 21-35 (4-6%) and very high among >35 y olds (14-16%). The prevalence of Trachomatous Trichiasis (TT) was around 1% among the >35 y olds. When looking at it for women and men separately, TT prevalence was around 2.5% for women >40 y old in both districts, while for men >40 y old it was <1%.

For comparison, elimination of blinding trachoma in a specific geographical area is achieved and sustained when: the prevalence of active inflammatory trachoma (TF) is maintained at less than 5% in children aged 1-9 years, and no operable cases of trichiasis are left uncorrected.

Risk factors for trachoma

Table 1 shows the relationship between trachoma and different socio-demographic, socio-economic and environmental factors. As also shown by the figures, trachoma was most prevalent among people aged

Table 1. Prevalence of trachoma by socio-demographic, socio-economic and environmental characteristics, by district.

| Characteristics | Chitwan | | Nawalparasi | |
|---|-----------------------|---------|-----------------------|--------|
| | Subjects per category | % | Subjects per category | % |
| <i>Age</i> | | | | |
| ≤ 10 years | 1370 | 19.9 ** | 1639 | 16.0 * |
| 11-20 years | 921 | 11.5 | 1075 | 6. |
| 21-35 years | 865 | 6.1 | 911 | 7. |
| ≥ 36 years | 983 | 18.1 | 1080 | 17. |
| <i>Ethnicity of individual</i> | | | | |
| Brahmin | 1081 | 7.6 ** | 545 | 5.9 * |
| Chhettri | 430 | 8.1 | 336 | 11. |
| Tharu | 1056 | 15.5 | 1473 | 15. |
| Occupational caste | 581 | 13.4 | 582 | 14. |
| Mongolian caste | 772 | 28.1 | 285 | 14. |
| Others | 219 | 15.5 | 1484 | 11. |
| <i>Education (analysis for >12 y olds)</i> | | | | |
| Uneducated / illiterate | 810 | 19.4** | 1282 | 15. |
| Literate but no formal education | 531 | 10.2 | 401 | 7. |
| 1-5 years schooling | 280 | 12.9 | 390 | 8. |
| 6+ years schooling | 891 | 5.2 | 718 | 4. |
| <i>Main source of family's income</i> | | | | |
| Agriculture | 3147 | 15.0 | 3939 | 13.0 |
| Service | 794 | 13.1 | 476 | 10. |
| Business | 198 | 17.7 | 285 | 7. |
| <i>Type of house</i> | | | | |
| Permanent (mainly brick) | 1148 | 13.1 * | 1248 | 9.0 * |
| Temporary (low-cost material) | 2991 | 15.4 | 3452 | 13. |
| <i>Value of houses owned</i> | | | | |
| <25,000 | 1818 | 15.8 | 2183 | 14.2 * |
| 25,000 - <50,000 | 1149 | 13.8 | 1239 | 12. |
| 50,000 - <100,000 | 575 | 14.3 | 697 | 9. |
| 100,000+ | 597 | 13.7 | 581 | 9. |
| <i>Toilet facility</i> | | | | |
| No toilet | 1777 | 17.0 ** | 3579 | 13.5 * |
| Permanent | 1153 | 10.2 | 592 | 8. |
| Temporary | 1204 | 15.7 | 525 | 9. |
| <i>Place for keeping cattle</i> | | | | |
| No cattle | 786 | 16.9 | 715 | 12. |
| In the house | 455 | 14.5 | 981 | 11. |
| Shed very close to house | 1740 | 14.9 | 1881 | 13. |
| Shed 1-3 m from house | 372 | 12.4 | 639 | 11. |
| Shed >3 m from house | 734 | 12.7 | 437 | 13. |

≤10 years and people aged ≥36 years. Prevalence was highest among people from Chitwan who belong to the Mongolian caste. Among individuals aged older than 12 years, those who were uneducated or illiterate had a much higher prevalence than those who had had some education. This may reflect socio-economic status as well as knowledge about hygiene in general and/or trachoma in particular. Other indicators of socio-economic status that were found to be related to the prevalence of trachoma included whether the house was temporary or permanent, the value of the house and toilet facilities. Indicators of hygiene practices were toilet facilities and whether the household had any cattle (and, if so, where they were kept). For toilet facilities, the relationship was very clear: the highest prevalence of trachoma was found among people who live in houses without a toilet.

(See Conclusions & Recommendations on the next page)

Conclusions

- The HKI/NNJS survey found a high trachoma prevalence in both Chitwan and Nawalparasi.
- The prevalence of trachoma was highest among people of lower socio-economic status, most likely reflecting poorer hygiene conditions.
- HKI's school health program in Nepal is the main program that implements the "F" and "E" components of the SAFE strategy for trachoma control.

Recommendations

- Attention needs to be paid to preventing infection and treating early stages of the infection among young children, and treating and/or operating older people with advanced stages of trachoma.
- Early prevention and intervention among young children is best done through raising awareness about trachoma and educating the population about how to prevent and treat it. School health education is a very good way for doing this and should therefore be started in both Chitwan and Nawalparasi.
- Additional ways to raise awareness and improve hygiene practices should also be explored, such as integrating similar education programs with nutrition interventions, with the Non Formal Education (NFE) program conducted by other agencies/NGOs in the area, with the activities of women's/mother's groups, school gardening, and tree plantation for environmental development.

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NEPAL

For information and correspondence, contact:

Helen Keller International, Nepal

P.O. Box 3752, Min Bhawan
New Baneshwor, Kathmandu
Nepal
Tel: (977-1) 480921/493344/493432
Fax: (977-1) 480234

Mr. Aminuzzaman Talukder

Country Director
zaman@hkinepal.wlink.com.np

Mr. Gopi Prasad Sapkota

School Health Coordinator
gopi@hkipc.wlink.com.np

Helen Keller Worldwide

352 Park Avenue South, Suite 1200
New York, NY 10010, USA
Tel: (212) 5320544
Fax: (212) 5326014
www.hkworld.org

Ms. Lisa Tapert

Director, Trachoma
ltapert@hki.org

Helen Keller International Asia-Pacific Regional Office

P.O. Box 4338, Jakarta Pusat
Indonesia
Tel: (62-21) 7198147/7199163
Fax: (62-21) 7198148

Dr. Martin W. Bloem

Regional Director
mwbloem@compuserve.com

Dr. Regina Moench-Pfanner

Regional Coordinator
remoench@cbn.net.id

Dr. Saskia de Pee

Regional Scientific Advisor
sdepee@compuserve.com



Helen Keller
WORLDWIDE

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