Original Article

Comparative Study on Knowledge and Awareness of Common Ocular Diseases Among Rural and Urban Community in Siraha District of Nepal: The Lahan Study

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Abstract

Introduction: Awareness and knowledge about the common ocular conditions can help people to seek early eye care services. The understanding and acceptance of the importance of routine eye examinations can help in timely detection and treatment of the eye diseases and thus help to reduce the burden of avoidable ocular blindness from the general population. This study aims to assess and analyze the information related to knowledge and awareness of common ocular diseases and eye health among the rural and urban communities of the Siraha district, Nepal.

Materials and methods: A descriptive cross-sectional study was conducted between April and June 2018 in Lahan Municipality ward number 6 (urban) and Sakhuwa Nankarkatti Rural Municipality ward number 4 (rural) in Siraha district. A systematic random sampling technique was used to interview adults above 18 years of age, using a pre-tested structured questionnaire. The collected data were analyzed using SPSS 20.0.

Results: Out of total 975 participants, 514 (52.7%) were from rural community in Sakhuwa Rural Municipality and 461 (47.3%) were from urban community in Lahan Municipality. The mean age was 38.38 ± 15 years. Female participants were more (63.2%) compared to male (36.8%). Overall, 58.3% were literate and 41.7% were illiterate. Rural community had more uneducated participants (48%) compared to urban community (34%). In rural community, 69% were aware about cataract, 83% had knowledge about its treatment; while in urban community 81% were aware about cataract and 86% had knowledge about its treatment. The awareness of glaucoma

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among the participants was poor, more so in rural cohort (15%) than the urban cohort (25%). The knowledge of glaucoma was 14% in rural and 62% in urban cohort. Awareness that diabetes can affect the eye was found to be significantly lower (p = 0.01) in rural population (25%) compared to that in urban population (41%) in this study. Awareness about Night blindness was lesser in rural (62%) compared to urban (70%) community (p = 0.17). Awareness about refractive errors was 37% in rural compared to 60% in urban community. The major sources of information were society and eye hospital in both communities.

Conclusion: The knowledge and awareness level regarding common ocular diseases was high among the community people of urban community (Lahan) in comparison to rural community (Sakhuwa Nankarkatti). Awareness and knowledge level mainly regarding glaucoma and diabetic retinopathy was very poor in both urban and rural community. There is need to conduct comprehensive awareness programs on common ocular diseases like cataract, glaucoma, diabetic retinopathy, night blindness, congenital eye disease, ocular trauma, eye donations and others in both rural and urban areas to raise the awareness level and improve attitudes and right practices reducing the burden of avoidable blindness.

Key words: Awareness, Knowledge, Ocular diseases, Rural, Urban .

Introduction

Awareness and knowledge about the common ocular conditions can help people to seek early eye care services. The understanding and acceptance of the importance of routine eye examinations can help in timely detection and treatment of the eye diseases. Thus it can help to reduce the burden of avoidable ocular blindness from the general population.

The prevalence of blindness in Nepal reduced from 0.84% in 1981 to 0.35% in 2012 according to the Rapid Assessment of Avoidable Blindness Survey in 2012 (Sapkota and Limburg, NNJS, 2012). The major causes of avoidable blindness according to this survey included cataract (62.2%), posterior segment diseases (16.5%), glaucoma (5.9%), corneal scar other than trachoma (5.2%) and uncorrected aphakia (3.4%) (Sapkota and Limburg, NNJS, 2012). The preventable and avoidable ocular conditions still constitute a major portion of blindness in Nepal despite the increase in infrastructures, human resources and eye health services.

Poor health literacy has been recognized as an important factor causing lack of or delayed uptake of health care services, lack of compliance to treatment and poor follow up in both developing as well as developed countries (Attebo et al, 1997; Dandona et al, 2001; Javitt, 1995; Shrestha et al, 2014). The illiteracy leading to poverty, ignorance, lack of knowledge and awareness have major implications for not seeking the eye care services. Several studies conducted on knowledge and awareness of ocular diseases in countries like Nepal, India, Pakistan and Bangladesh show poor knowledge and awareness of common ocular conditions (Dandona et al, 2001;Shrestha et al, 2014; Sapkota et al, 2010; Shrestha et al, 2018; Zhao et al, 2019; Memon et al, 2015; Islam et al, 2015). Having heard of the disease was defined as “awareness” and having some understanding of the basic etiology, symptoms and treatment of the disease was defined as “knowledge”. Other factors like cultural beliefs, demographic, personal, socio-economic, psycho-social factors may also be attributed

to poor utilization of available, accessible and affordable eye care services (Ntsoane, 2010).

Sagarmatha Choudhary Eye Hospital (SCEH) was established in Siraha district, which lies in the eastern Terai region of Nepal, in 1983. Since its establishment it is rendering high quality eye care services through its base hospital, eye care centers and have provided extensive community outreach programs like screening camps, school screening programs, mobile clinics in this and surrounding areas. At present, no comprehensive community based study comparing the knowledge and awareness of common ocular diseases among rural and urban communities in Terai region of Nepal exists. The aim of this study was to assess and analyze the information related to knowledge and awareness of common ocular diseases and eye health among the rural and urban communities of the Siraha district, Nepal.

Materials and methods

A descriptive cross-sectional study was conducted between April and June 2018 in Lahan Municipality ward number 6 (urban) and Sakhuwa Nankarkatti Rural Municipality ward number 4 (rural) in Siraha district. The site map is shown in Figure 1.

The sample size of 975 was calculated from the study population of 3247. A systematic random sampling technique was used to interview adults above 18 years of age, using a structured questionnaire. The questionnaire used for data collection was pre-tested at a nearby community for 10% of samples which were not included in the sample cluster. The questionnaire was developed in Nepali language but during the interview colloquial terms for ocular diseases in the local Maithili language obtained from eye care personnel, patients and experts in questionnaire formulation were also used. The data were collected by third year Diploma in Ophthalmic Sciences students after a week-long field orientation program for preparation of survey questionnaire, checklists of observations, data collection, and familiarization with the survey form and the situation on the field. For validity and reliability, close supervision and monitoring was done by the researchers and expert consultation was taken. For ethical clearance, approvals were taken from the hospital and from Lahan Municipality, ward no 6 and Sakhuwa Rural Municipality, ward no 4. Verbal consent was taken from the respondents before the interview. Collected data were entered into Microsoft Excel 2007 and analyzed using Statistical Package for Social Science (IBM SPSS, Armonk, NY: IBM Corp.) version 20.0.

Results

Demographic distributions

Nine hundred seventy five participants were included in this study. Five hundred and fourteen (52.7%) were from rural communities in Sakhuwa Rural Municipality and four hundred and sixty one (47.3%) were from urban communities in Lahan Municipality. The age ranged from 18 to 100 years and the mean age was 38.38 ± 15 years. Most participants were between 21 – 30 years of age (27.5%), followed by participants between 31-40 years of age (26.9%). Female participants were more (63.2%) compared to male (36.8%). Overall, 58.3% were literate and 41.7% were illiterate. Rural communities had more uneducated participants (48%) compared to urban communities (34%). The majority of participants (91.28%) were Hindus and the rest (8.72%) were Muslims. Most of the participants were involved in agriculture as occupation (43%) in rural communities while majority were housewives (43%) in urban communities. The demographic distribution of both rural and urban population is shown in Table 1.

Knowledge and awareness of Cataract and Glaucoma

In the rural community, 354 out of 514 participants (69%) had heard about cataract, out

of which only 118 (33%) had proper knowledge about the cause but 293 (83%) had knowledge about its treatment. In the urban community, 372 out of 461 participants (81%) had heard of cataract, out of which 358 (96%) had proper knowledge about its cause and 396 (86%) had proper knowledge about the treatment of cataract. The awareness and knowledge about cataract was better in urban cohorts ($p = 0.05$).

In the rural community, only 77 out of 514 participants (15%) had heard about glaucoma, out of which only 11 (14%) had knowledge regarding signs and symptoms of glaucoma. While in the urban community, 115 out of 461 participants (25%) had heard of glaucoma and 72 (62%) of them had proper knowledge regarding signs and symptoms of glaucoma. The awareness and knowledge about glaucoma was better in the urban cohort compared to rural cohorts ($p = 0.49$).

Knowledge and awareness of Diabetic retinopathy and Night Blindness

Regarding Diabetic retinopathy, 130 out of 514 participants (25%) in rural communities were aware about it. Among them, 38% of participants had knowledge regarding signs & symptoms of it and responded that regular eye examination is essential. While in the urban community, 191 out of 461 participants (41%) were aware of diabetic retinopathy, out of which 49% had proper knowledge about its signs & symptoms and responded that regular eye examination is essential. The awareness and knowledge about diabetic retinopathy was significantly better in urban cohort compared to rural cohort ($p = 0.01$). Overall, 138 out of 975 participants (14.15%) in both rural and urban populations had known diabetes mellitus. The awareness about diabetic retinopathy was more among known diabetics in both rural and urban populations.

Awareness about Night Blindness was present in 319 out of 514 participants (62%) in the rural community of Sakhuwa Gaupalika, which is lesser compared to 323 out of 461 participants (70%) in urban community of Lahan Nagarpalika ($p = 0.17$).

Knowledge and awareness of Congenital eye diseases and Systemic diseases

In rural communities, 47% had heard about congenital eye diseases compared to 60% in urban communities. Among 514 participants in the rural community 176 (34%) were reported to have systemic diseases. While in the urban community 228 participants (49%) had systemic diseases. Overall, hypertension was the most common systemic disease (40%) followed by diabetes (34%) and arthritis (26%) in both rural and urban communities.

Knowledge and awareness of Ocular trauma and Chemical injury

In the rural community, 73% of participants were aware of ocular trauma and knew they should go for immediate eye examination in hospital, while in the urban community 82% of participants were aware of ocular trauma and knew they should go for immediate eye examination in hospital. Regarding chemical injury, 59% of participants in rural communities were aware and responded that immediate wash with water should be given. While in the urban community 70% of participants were aware and knew that immediate wash with water should be given.

Knowledge and awareness of refractive errors and eye examination for ocular problems

Regarding different types of refractive errors, 37% of participants in the rural community of Sakhuwa Rural Municipality were aware about it compared to 60% of that of the urban community in Lahan Municipality. In the rural community of Sakhuwa Rural Municipality, 64% of the participants had some ocular problems within the last two years for which they had their eye examination done. Among

them, 86% had visited SCEH and the rest 14% had visited other eye hospitals. In the urban community of Lahan Municipality, 54% of the participants had some ocular problems within the last two years and had their eye examination done. Among them, 75% had visited SCEH while the rest 25% had visited other eye hospitals.

Knowledge, awareness and attitude towards eye donation

In the rural community, 215 out of 514 participants (42%) were aware of eye donation and majority of them (89%) had a positive attitude towards it. While in the urban community, though 295 (64%) were aware of eye donation, only 60% of them had a positive attitude towards eye donation.

The comparative awareness and knowledge of various ocular diseases among rural and urban study populations is shown in Table 2.

Source of information

This study also investigated the common sources of information for awareness and knowledge of common eye diseases. In rural community, major sources of information were society (48%) followed by eye hospital (23%), Radio/TV (7%), health workers (6%), books (5%) etc. while in urban community, the major sources of information were eye hospital (45%) followed by society (35%), books (7%), Radio/ TV (4%), health workers (4%), internet (2%) etc (Figure 2).

Table 1: Demographic distribution of study population

Description	Rural	Urban
	Number (%)	Number (%)
Participants	514	461
Mean Age, SD	38±16	38±14
Gender		
Male	186 (36)	173 (38)
Female	328 (64)	288 (62)
Education		
Literate	266(52)	302(66)
Illiterate	248(48)	159(34)
Religion		
Hindu	448(87)	442(96)
Muslim	66(13)	18(4)
Marital Status		
Unmarried	50(10)	55(12)
Married	451(88)	393(85)
Widow	12(2)	12(3)
Occupation		
Agriculture	219(43)	32(7)
Housewife	148(29)	201(43)
Private job	47(9)	106(23)
Students	43(8)	30(7)
Government job	24(5)	70(15)
Labour	13(2)	13(3)
Others	20(4)	9(2)

Table 2: Comparative awareness and Knowledge of various ocular diseases among rural and urban study population

Characteristics	Rural n (%)	Urban n (%)
Cataract awareness	354 (69)	372 (81)
Cataract knowledge of cause	118 (33)	358 (96)
Cataract knowledge of treatment	293 (83)	396 (86)
Glaucoma awareness	77 (15)	115 (25)
Glaucoma knowledge	11 (14)	72 (62)
Diabetic retinopathy awareness	130 (25)	191 (41)
Diabetic retinopathy knowledge	50 (38)	22 (49)
Eye donation awareness	215 (42)	295 (64)
Eye donation positive attitude	191 (89)	177 (64)
Awareness night blindness	319 (62)	323 (70)
Awareness congenital eye diseases	242 (47)	276 (60)
Awareness ocular trauma	375 (73)	378 (82)
Awareness chemical injury	303 (59)	323 (70)
Awareness refractive errors	154 (37)	277 (60)

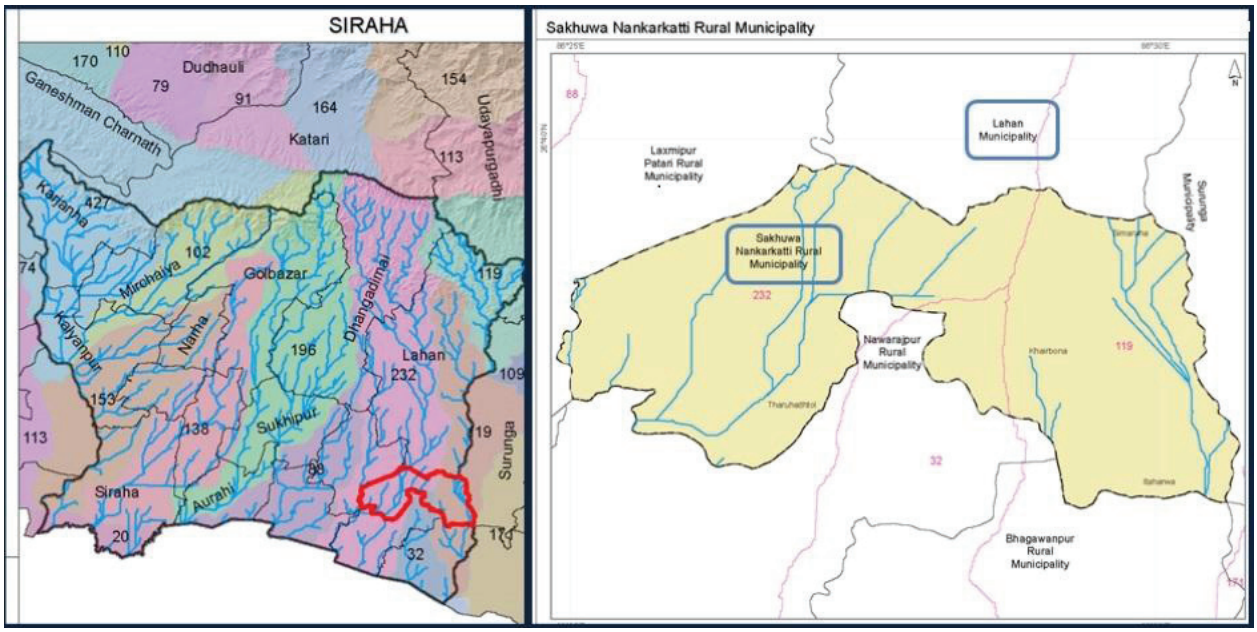

Figure 1

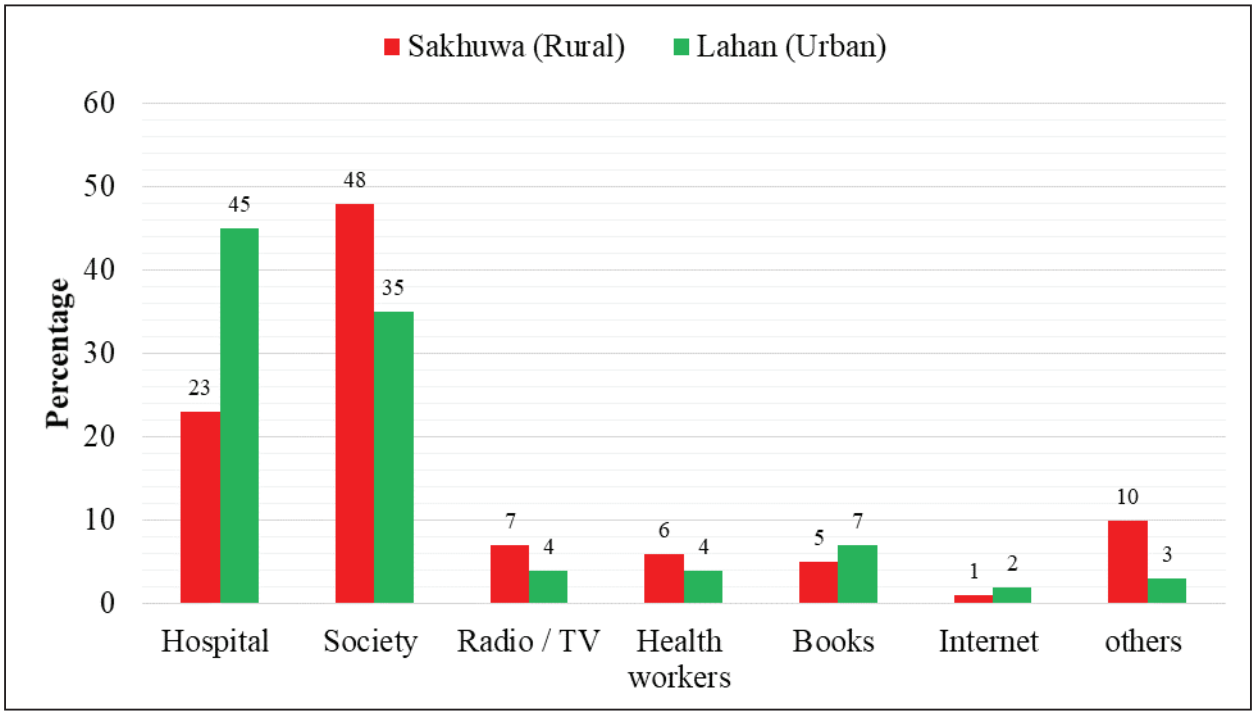

Figure 2: Source of Information of the study population

Discussion

The findings in this study represent the community-based data that compares the rural and urban community. These findings will be useful in planning health education programs in the study population as well as in other populations similar to the study population to increase the knowledge and awareness about common eye diseases.

Cataract is the leading cause of blindness in Nepal, followed by glaucoma and diabetic retinopathy and trachoma (Sapkota and Limburg, NNJS, 2012; Shrestha et al, 2014; Thapa et al, 2011). Among the study population, awareness of cataract was moderate in both rural and urban communities, but knowledge was poor in rural communities compared to urban communities. The overall awareness in the study population (75%) is comparable to another study from hilly region in Nepal by Shrestha et al, 2018 (74.6%) and slightly higher than that reported from semi urban community of Bhaktapur district of Kathmandu valley by Shrestha et al, 2014 (54.2%). Sapkota et al 2010 reported the awareness about cataract to be 72% from Rautahat district of Nepal and a similar community-based study on awareness of eye diseases in urban Indian population showed that the awareness of cataract was 73.1% (Dandona et al, 2001) which is comparable to our study. The awareness of cataract was higher (98%) in the study from Australia as reported by Attebo et al (1997).

The awareness of glaucoma among the participants was poor in our study, more so in the rural cohort (15%) than the urban cohort (25%). It was also less in the previous studies from Nepal as reported by Shrestha et al, 2014 (21.3%), Shrestha et al, 2018 (17.4%), Thapa et al, 2011 (2.43%) and a study from India as reported by Dandona et al, 2001 (2.4%). A reasonable level of awareness about glaucoma was reported by Livingston et al, 1995 (70%) and Attebo et al, 1997 (93%) from Australia. The knowledge of glaucoma in this study is only 14% in rural cohort, while that in urban

cohort is 65%. Previous studies from Nepal reported the knowledge of glaucoma to be 8.9% by Shrestha et al, 2018; 45.5% by Thapa et al, 2011 and that from India to be 86.7% by Dandona et al, 2001. The awareness of glaucoma should be improved by means of health education since it can cause progressive and irreversible loss of vision.

Awareness that diabetes can affect the eye was found to be significantly lower (p = 0.01) in rural population (25%) compared to that in urban population (41%) in this study. Another population based study conducted by Thapa et al, 2015 in Bhaktapur district have reported awareness of Diabetic retinopathy among the general population to be 11.5% and awareness among diabetics to be 40%. Similar population based study from an urban area of Nepal reported the awareness of diabetic retinopathy to be 50% among diabetic patients (Paudyal et al, 2008). The awareness of diabetic retinopathy has been reported to be 28.8% from urban population of southern India (Dandona et al, 2001) and 37.1% from population of southern Indian rural districts (Rani et al, 2008). This study also shows that those with known systemic diabetes were more aware of the diabetic retinopathy and were more likely to have regular eye examinations in both rural and urban populations. Awareness of the disease could thus motivate people to undergo regular eye examinations.

Regarding ocular trauma and chemical injuries, the knowledge about the immediate measures to be taken and importance of immediate eye examinations were more likely to be present in those who were aware of the conditions in both rural and urban populations. Regarding eye donations, those who were aware of it were more likely to have positive attitudes toward the eye donations in both rural and urban populations. We recommend that raising awareness will thus improve the positive attitudes and right practices.

The overall awareness and knowledge about the common ocular conditions and preventive measures is low in both rural and urban populations in Siraha district, more so in rural populations. Public health promotion should be designed to address these knowledge gaps in a community by involving society in collaboration with eye care centres and eye hospitals. Comprehensive awareness programs and campaigns with proper follow up should be initiated with focus on rural populations. Raising awareness will motivate people for regular eye examinations and thus help in early diagnosis and treatment of ocular disease. This will in turn help in reduction in prevalence of avoidable blindness.

Conclusion

The knowledge and awareness level regarding common ocular diseases was high among the community people of urban communities (Lahan) in comparison to rural communities (Sakhuwa Nankarkatti). Awareness and knowledge level regarding glaucoma and diabetic retinopathy was very poor in both urban and rural communities. There is need to conduct comprehensive awareness programs on common ocular diseases like cataract, glaucoma, diabetic retinopathy, night blindness, congenital eye disease, ocular trauma, eye donations and others in both rural and urban areas to raise the awareness level and improve attitudes and right practices reducing the burden of avoidable blindness.

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