Assessing awareness and treatment knowledge of preventable blindness in rural and urban South African communities

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Background. Preventable blindness is a global public health problem. In South Africa (SA) the prevalence of blindness is increasing, with a higher proportion of cataracts than the global norm, and a large rural population with limited access to specialised eye-care services.
Objective. To determine the level of knowledge regarding preventable blindness and treatment options within a rural and urban population.
Setting. Rural and urban areas in the Eastern Cape, SA.
Methods. A descriptive cross-sectional study was conducted among 309 participants. Questionnaires were administered by fieldworkers at the different sites. Proportions were calculated and χ^2 tests done to determine whether there was any significant relationship between the categorical variables. Data analysis was done using Stata version 15.
Results. Participants were almost equally distributed among the urban (49.2%) and rural areas (50.8%). Both groups had a similar composition of males and females. Most participants had completed high school. The results showed a statistically significant difference between the urban and rural participants' knowledge about the causes of blindness: refractive error χ^2 (1, N=30) = 8.20, p<0.05, and cataract χ^2 (1, N=28) = 8.64, p<0.05. The top two differences in the views between urban and rural participants regarding symptoms associated with eye problems (p<0.05) were: 'people who need spectacles have double vision', χ^2 (1, N=122) = 28.19; and 'people who need spectacles squint their eyes', χ^2 (1, N=124) = 17.37. The majority of urban participants reported opting to go to a private optometrist for eye health services, while the majority of rural participants would go to a pharmacy. Both groups were aware of the role of ageing in blindness.
Conclusion. Urban participants in this study appeared to be more knowledgeable than rural participants about the causes and symptoms of blindness and its treatment options. These findings should provide some value to those who provide primary healthcare services in rural areas as there is a clear opportunity for patient education and health promotion regarding the causes and symptoms of these common preventable causes of blindness. Addressing this knowledge gap regarding the causes and symptoms of blindness and the treatment options is a critical first step for awareness programmes in rural areas. Without this, there will be little demand for any treatment or service. Future studies are needed to understand which health promotion interventions are effective in preventable blindness in rural populations.

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One percent of Africa's population is blind, based on the World Health Organization (WHO) criteria of visual acuity of 3/60, while South Africa (SA) has a prevalence of 0.75% of blindness – 80% of which is attributable to preventable causes.[1,2] The WHO formed a partnership with the International Agency for the Prevention of Blindness (IAPB) and launched the Vision 2020: The Right to Sight project. The most important goal of the project was to eliminate preventable blindness caused by cataracts, trachoma, vitamin A deficiency, refractive errors, and onchocerciasis.[3] The Vision 2020: The Right to Sight project suggests reducing preventable blindness through effective disease control, developing human resources, and developing appropriate infrastructure and resources.[4,5] The leading causes of preventable blindness globally are cataracts (33%) and uncorrected refractive error (42%).[1] These common causes were taken into consideration when setting the indicators and targets for the human resources needed for the Vision 2020: The Right to Sight project. According to Bozzani *et al.*[6] the targets/indicators recommended for sub-Saharan Africa are: 'one ophthalmologist per 250 000 population, one ophthalmic clinical officer per 200 000 population, one ophthalmic nurse per 200 000 population, 25% of secondary eye facilities should employ an equipment technician and a full-time manager, one eye bed per 20 000 population, one eye operating theatre per 7 million population and 4 000 cataract surgeries per year per million population.'[6] The cataract surgery rate (CSR) is the number of cataract services delivered per million population per year. The targets for CSRs have doubled over time from 1 000 per year per million population in 1997 to 2 000 per year per million population in 2007.[1] The CSR target of 2 000 per year per million population is the current standard used for planning.

The South African context

In 2001, 5% of the SA population had a disability; within this group, 1.3% had a disability related to being visually impaired.[3] Ten years later 7.5% of the SA population had a disability and those with a visual impairment formed 11% of this population.[7] Unfortunately, because of changes that were made to the census survey questions, the 2011 results are not comparable to the 2001 results. It is therefore impossible to make deductions about the state of blindness based on these results. Even though this proportion of blindness among the general population is comparatively insignificant, there is an increase in the prevalence of blindness in SA, which is likely to increase further as the population ages. The National Guidelines on Prevention of Blindness in South Africa reported a prevalence of 0.75% for blindness (2002), and Naidoo *et al.*[8] reported a higher prevalence of 0.9% 10 years later. The leading causes of preventable blindness in SA are the same as those that have been reported globally, but the proportion due to cataracts is double the global figure (66% compared with the global figure of 33%) and refractive error is substantially less (10% compared with the global figure of 42%).[3]

Refractive errors are diagnosed through an eye examination that is usually conducted by an optometrist and are corrected by spectacles, contact lenses, or refractive surgery.[9] The different ways in which refractive errors can be managed are not always available to the ordinary South African owing to inaccessibility, affordability, or services not being provided, and therefore the needs of certain sectors of the population are not met.[9] Two of the listed causes of preventable blindness targeted by the Vision 2020: The Right to Sight project are not endemic to SA. SA was declared trachoma-free in 2002,[10] and it is not one of the 31 African countries affected by onchocerciasis.[11]

Vitamin A is an essential micronutrient that maintains vision by preserving the integrity of the epithelial cells.[12] Therefore, a diet deficient in vitamin A may cause xerophthalmia which refers to all eye defects caused by this vitamin deficiency.[12] The 2005 National Food Consumption Survey showed that 63.6% of SA children under the age of 9 years had a vitamin A deficiency.[13] This reflects a significant number of SA children who are at risk of xerophthalmia.

Since the launch of the Vision 2020: The Right to Sight project, SA has implemented different measures and projects/initiatives toward the elimination of preventable blindness. The past struggle against trachoma and vitamin A deficiency was approached through disease control measures such as patient education, health promotion, vitamin A supplementation, food fortification, and dietary diversification. There has also been an improvement in the number of healthcare workers available for the SA population. In 2010, the International Council of Ophthalmology determined the number of ophthalmologists in practice and in training worldwide.[14] The results from this survey reported a total number of 324 ophthalmologists in SA, which translates to 6 ophthalmologists per million population.[15] The overall ophthalmologist numbers are satisfactory as they surpass the 1 ophthalmologist per 250 000 population target.[6] In 2018 there were 3 866 optometrists[16] registered with the Health Professions Council of SA. Considering the country's population of 51.8 million,[7] this translates to 1 optometrist for every 13 399 population. However, the numbers are skewed in favour of the private sector as only 262 optometrists[17] were employed in the public sector in 2017. The SA government has tried to address this shortfall by the inclusion of other health professions, such as ophthalmic medical officers and ophthalmic nurses, in the public sector, but the numbers are small (less than 100 for both groups in 2011 with no recent data available).[18] Different infrastructure and resources have been made available where the population can access healthcare workers, i.e. government clinics throughout the different districts, Ophthalmological Society of South Africa's Second Sight Project, the Western Cape Provincial Department of Health's Eye Care/Prevention of Blindness programme, South African Optometric Association's community eye care centres and Bonang centres, the Phelophepha train and the University of Pretoria's Vision20/20 Eye Care Clinic.

The interventions recommended by the Vision 2020: The Right to Sight project focus on the provision of services, notably improving disease control, human resources, infrastructure, and resources. However, the availability of resources has little effect if those who should access the service are not aware of the services. Knowledge about the availability of eye-related services is of particular concern in SA, which has a rural population that constitutes a third of the total population, *and* a national increase in the prevalence of blindness. Our study therefore aimed to compare the level of knowledge regarding the causes of preventable blindness and treatment options within a rural and urban population in the Eastern Cape, SA.

Methods

A descriptive cross-sectional study was conducted. The study setting comprised a rural clinic (Zitatele kuNgolo Clinic (ZNC), Mthatha) and an urban hospital (Cecilia Makiwane Provincial Hospital (CMH), East London) in the Eastern Cape. The urban population was included to provide a comparison group.

The targeted population was those who were 21 years and older, blind or not blind, had been diagnosed/not diagnosed with a refractive error, and had/had not received correction in the form of spectacles, contact lenses, or visual aids. Those who had been diagnosed with cataracts or xerophthalmia and had/had not received treatment were also included. Convenience sampling was done, as no sampling framework, such as a full patient database, was available. All the individuals in the waiting area of the outpatient and radiology department were invited to participate in the study. Some of the questionnaires included a QR code which was used to ensure randomisation as only these questionnaires were included in the study.

Proportional sampling was used to determine the number of participants from each area. Proportional sampling is a sampling strategy that is used when the population is composed of several subgroups that are different in size.[19] The number of participants from each subgroup is therefore determined by their relative size.[19] The population sizes of Mdantsane and Umtata were used to determine this proportion. A total of 340 participants were required (196 from ZNC and 144 from CMH).

The 11-item questionnaire (with 8 closed-ended questions) was self-developed based on the literature relating to preventable blindness and management options and was available in English. A pilot study was conducted by the first author on 15 participants to refine the questionnaire. These 15 questionnaires were excluded from the study. The survey was conducted on different days and was repeated until the target sample size was reached. Three fieldworkers administered the questionnaire. The fieldworkers were trained before starting the data collection. Fieldworkers assisted where needed, e.g. when a participant had a visual problem or was not fluent in English. At the end of each day, the questionnaires were handed in to the leader. The questionnaires were scanned and saved on Google Drive and the hard copies kept safely in a box at the field leader's home.

Data were entered into EpiData 3.1 (EpiData, Denmark) for verification and data cleaning and management. Data analysis was done using Stata 15 (StataCorp, USA). Frequency counts and percentages were calculated and χ^2 tests were done to determine whether there was any significant relationship between the categorical variables. A p-value <0.05 was considered statistically significant.

Approval to conduct the study was granted by the University of Pretoria Faculty of Health Sciences Research Ethics Committee (ref. no. 547/2021) and the Eastern Cape Provincial Department of Health (ref. no. EC_202109_013). The purpose of the study was explained to the participants and informed consent was obtained. No identifying details were documented in order to maintain the participants' anonymity. Participants were interviewed on the day of their routine visit and COVID-19 protocols were observed.

Results

A total of 340 questionnaires were administered and 31 questionnaires were excluded as they were incomplete. The final 309 questionnaires were almost equally distributed between the sites (49.2% (n=152) from CMH and 50.8% (n=157) from ZNC. The participants' sociodemographic characteristics are illustrated in Table 1.

A total of 87 participants reported having been diagnosed with any kind of eye condition by a health professional. This proportion was

similar among the urban participants (n=41, or 26.3% of the total study population) and the rural participants (n=46, or 29.2% of the total study population).

The participants were asked to indicate all the conditions that they thought could cause blindness from a list of causes. The list included one false option ('using the wrong spectacles') as a distractor (Table 2).

The results show statistical significance in the difference between the urban and rural participants' opinions that 'an eye that can see close but not far' (i.e. a refractive error) (χ^2 (1, N=30) = 8.20, p<0.05) and a cataract (χ^2 (1, N=28) = 8.64, p<0.05) are causes of blindness. All participants knew about the link between old age and blindness.

Participants were then asked to indicate the symptoms they thought an individual would experience if they had eye problems. The list included one false option ('people who lack vitamin A struggle to see during the daytime') as a distractor (Table 3).

There were several significant differences between urban and rural participants' views on symptoms associated with eye problems. The second highest difference was for the distractor item, χ^2 (1, N=125) = 21.22, p<0.05. Those statements that were correct and also had a significant difference (p<0.05) between urban and rural participants were: 'people who need spectacles have double vision', χ^2 (1, N=122) = 28.19; 'people who need spectacles squint their eyes', χ^2 (1, N=124) = 17.37; 'people who need spectacles get headaches', χ^2 (1, N=125) = 8.68; and 'people with blindness may have a red and painful eye', χ^2 (1, N=111) = 1.29.

Participants were asked which healthcare professional they could consult when they experienced eye problems (Table 4). A pharmacist was included on the list of professionals to serve as a distractor.

All of the results were significant but the χ^2 values were the lowest for pharmacists (χ^2 (1, N=261) = 10.91, p<0.05) which implies that both urban and rural participants would not choose to go to a pharmacist when experiencing visual problems, with the rural participants being the ones least likely to choose a pharmacist.

Participants also reported where they thought they could go for assistance for eye problems (Table 5). A pharmacy was used as a distractor. Only one result was significant. Urban participants were four times more likely than rural participants to suggest going to a private optometry practice for eye care services (χ^2 (1, N=97) = 4.19, p<0.05). The most popular choice of rural participants (56.8%) appeared to be to go to a pharmacy, but there was no significant difference between the two groups for this choice.

Participants were allowed to pick treatment options for blindness from a list of four options. Herbal medicine was used as a distractor (Table 6). Only the option of an operation showed no significant difference between urban and rural participants. There was a significant difference between the two groups on the use of herbal medicine; urban participants were substantially more likely to use herbal medicines for the treatment of blindness compared with rural participants.

Finally, participants were asked an open-ended question about what they thought causes blindness and both groups named old age as the common reason.

Discussion

This study compared the level of knowledge regarding the causes of preventable blindness and treatment options between a rural and urban population in the Eastern Cape. At the time of this study, no similar study had been conducted in the Eastern Cape. However, a similar study in another province in SA explored the knowledge, attitudes, and practices of eye health among public sector eye health workers.[20]

The study population was constituted of two groups: urban and rural participants. The urban participants were mostly male while the rural participants were predominantly female. The majority of participants from both groups were over the age of 35 years. Almost all the rural participants were from a village, while the urban participants were from a township, a village, and the city. The majority of participants from both groups had a high school education. More rural participants had no formal education compared with their urban counterparts. Conversely, more urban participants had a tertiary education than their rural counterparts.

A similar proportion of the urban and rural participants had been diagnosed with an eye condition by a health professional. Addo *et al.*[21] found that 1 in 10 South Africans had experienced loss of vision. This prevalence is lower than that of this study. The difference could be attributed to the small sample size of the current study and the relatively narrow age range of the participants. Also, while the current study only included participants older than 21 years, Addo *et al.*[21] included participants from the age of 15 years. Addo *et al.* examined the participants while the current study only collected self-reported data.

There was a significant difference in knowledge between the urban and rural participants on refractive error and a cataract being the cause of blindness. The majority of the urban participants agreed that a refractive error can cause blindness while a smaller group among the rural participants agreed. This finding suggests that rural participants do not associate a refractive error with blindness. The study also shows a significant difference between the urban and rural participants' views on the symptoms that are associated with blindness. A large number of the urban participants agreed that the following symptoms are associated with blindness: 'people who need spectacles get headaches', 'people who need spectacles squint their eyes', 'people who need spectacles have double vision' and 'people with blindness have a red and painful eye'. This list differs from the rural participants where a very small percentage of the rural participants associate the aforementioned symptoms with blindness. These findings appear to be in contrast to those of a study that determined that a majority of the participants in a Spanish study were aware of blindness, but had limited information on low vision and some incorrect views on blindness.[22] Therefore, the rural population in this study is similar to the Spanish population in this regard. One explanation of the difference between the urban and rural participants could be the educational level – however the Spanish study had a high number of participants with a tertiary education but still reported similar findings.

The majority of the urban participants in the current study would consult an optometrist compared with a much smaller percentage of the rural participants. This finding is in line with Akuffo *et al.*'s[23] study that investigated the eye care utilisation pattern in SA, where the researchers observed that the majority of respondents who had never had an eye exam were rural rather than urban. This finding is most likely due to the scarcity of optometry services in rural areas, as Akuffo *et al.* noted that eye care services are more readily available in urban rather than rural areas.[23] Therefore, the differences between the urban and rural participants in this study may be attributed to a difference in access to services rather than knowledge. The majority of the rural participants said that they would consult a nurse when experiencing visual problems. This finding confirms that nurses are the most accessible frontline health professionals, in line with the study by Xulu-Kasaba *et al.*[24] who found that all districts in KwaZulu-Natal Province had an ophthalmic nurse. Interestingly, the results showed that the rural population would not consult a pharmacist for eye problems even though they would go to a pharmacy when

Table 1. Sociodemographic profile of participants

Variable		Urban, *n* (%)	Rural, *n* (%)
Area			
	Village	52 (16.83)	153 (49.51)
	City	4 (1.30)	1 (0.32)
	Township	96 (31.07)	3 (0.97)
	Farm	0 (0)	0 (0)
Age group, years			
	21 - 25	15 (4.85)	44 (14.24)
	26 - 35	31 (10.03)	28 (9.06)
	36 - 45	49 (15.86)	23 (7.44)
	46 - 55	29 (9.39)	23 (7.44)
	>55	28 (9.06)	39 (12.62)
Gender			
	Male	80 (25.89)	72 (23.30)
	Female	72 (23.30)	75 (24.27)
	Non-binary	0 (0)	1 (0.32)
	Prefer not to say	0 (0)	9 (2.91)
Education			
	No formal education	7 (2.27)	20 (6.47)
	Primary school education	20 (6.47)	18 (5.83)
	High school education	88 (28.48)	92 (29.77)
	Tertiary education	37 (11.97)	27 (8.74)

Table 2. Participants' opinions/knowledge regarding the causes of blindness

Variable	Urban, *n* (%)	Rural, *n* (%)	χ^2	*p*-value
An eyeball that is shaped like a rugby ball			2.417	0.120
Yes	10 (30.30)	3 (9.09)		
No	19 (57.56)	1 (3.03)		
Having high blood pressure			1.2336	0.267
Yes	25 (80.65)	3 (9.68)		
No	2 (9.68)	1 (3.23)		
Having diabetes (high sugar)			0.1531	0.696
Yes	26 (83.87)	4 (12.90)		
No	1 (3.23)	0 (0)		
An injury to the eye caused by a forceful knock			-	-
Yes	26 (86.67)	4 (13.33)		
No	(-)			
An eye that can see close up but can't see far			8.2051	0.004
Yes	25 (83.33)	2 (6.67)		
No	1 (3.33)	2 (6.67)		
Cataract (when the eye/s become/s cloudy)			8.642	0.003
Yes	25 (89.29)	2 (7.14)		
No	0 (0)	1 (3.57)		
Old age			-	-
Yes	26 (86.67)	4 (13.33)		
No	-			
*Using the wrong spectacles			-	-
Yes	23 (92.0)	2 (8.0)		
No	(-)	(-)		
A lack of vitamin A in the body			0.1983	0.656
Yes	20 (83.33)	2 (8.33)		
No	2 (8.33)	0 (0)		
Being born with white spots on your eye			0.0554	0.814
Yes	18 (90.0)	1 (5.0)		
No	1 (5.0)	0 (0)		

*Distractor.

Table 3. Symptoms participants think are associated with eye problems

Variable	Urban, *n* (%)	Rural, *n* (%)	χ^2	*p*-value
People with cataracts will have blurred vision			0.0989	0.753
Yes	144 (56.92)	105 (41.50)		
No	2 (0.79)	2 (0.79)		
People will see double (two of everything)			5.3759	0.020
Yes	145 (63.88)	79 (34.80)		
No	0 (0)	1 (1.32)		
People with blindness will have cloudy vision with no pain			2.0678	0.150
Yes	142 (67.30)	68 (32.23)		
No	0 (0)	1 (0.47)		
People who lack vitamin A struggle to see at night			2.0678	0.150
Yes	110 (82.71)	19 (14.29)		
No	3 (2.26)	1 (0.75)		
*People who lack vitamin A struggle to see during the day			21.2215	0.000
Yes	108 (86.4)	8 (6.4)		
No	4 (3.2)	5 (4)		
People who need spectacles get headaches			8.6848	0.003
Yes	112 (89.6)	12 (9.6)		
No	0 (0)	1 (0.8)		
People who need spectacles squint their eyes			17.3569	0.000
Yes	111 (89.52)	11 (8.87)		
No	0 (0)	2 (1.61)		
†People who need spectacles have double vision			28.1933	0.000
Yes	110 (90.16)	9 (7.38)		
No	0 (0)	3 (2.46)		
People with blindness have a red and painful eye			1.2944	0.000
Yes	98 (88.29)	9 (8.12)		
No	3 (2.7)	1 (0.90)		
People who lack vitamin A have a sore on their eye			2.649	0.104
Yes	95 (91.35)	4 (3.85)		
No	4 (3.85)	1 (0.96)		

*Distractor.
†Layman's explanation for 'ghosting' of vision.

experiencing eye problems. This behaviour could be a reflection that they consider their eye problems to be minor. This finding is very similar to a study conducted by Ocansey *et al.*[25] where they assessed the eye-care-seeking behaviour of the people on the Cape Coast of Ghana. They found that their respondents opted to go to a pharmacy because they assumed their eye problems were minor.[25]

Rural participants in the current study were less likely than urban participants to acknowledge the use of vitamin A supplementation or spectacles for the treatment of blindness, but the two groups agreed on the role of operations. The limited awareness about treatment options for blindness is similar to a study in India where it was reported that the awareness of the participants regarding the treatment of cataracts, a common cause of blindness, was low.[26] In this study, there was a difference in opinion between the two groups on the use of herbal medicines, with the urban participants agreeing that herbal medicines could be used in the treatment of blindness while the rural participants disagreed. The urban participants' views are in line with Shayanfar *et al.*'s[27] library-based study, where they reported literature that stated that medicinal herbs can be used in the treatment of visual impairment with other conventional treatment methods.[27]

Both groups named old age as a leading cause of blindness. This finding is similar to a study in China where Lau *et al.*[28] showed that visual loss due to ageing was a common belief within a community in Hong Kong. With old age being a risk factor for cataracts, it is understandable how the two groups would name old age as a leading cause of blindness.

The current study particularly highlights the difference between rural and urban participants' knowledge regarding the causes of blindness (refractive errors and cataracts), symptoms related to eye problems (double vision, headaches, red and painful eyes) and the range of treatment options.

Strengths and limitations

One strength of the study is that this study focused on a rural population which is often a group whose healthcare needs are less well researched than urban populations. A second strength is that the topic is preventable blindness, which can be identified, diagnosed, and managed at a primary healthcare level. These interventions are cost-effective in comparison with the economic and psychosocial consequences of blindness, and primary care services are more common than tertiary care services in rural areas. The study was conducted in a predominantly Xhosa-speaking area and the questionnaires were available in English. Even though the questionnaires were administered by trained fieldworkers, the need to translate the questions from English to isiXhosa may have affected the results of the survey. The participants were not asked whether or not they belonged to a medical aid scheme. It is possible that the urban participants are more likely to be medical aid members and would have been more likely to name private service providers.

Table 4. Participants' views on whom they can consult regarding eye problems

Variable	Urban, *n* (%)	Rural, *n* (%)	χ^2	*p*-value
*Pharmacist			10.9116	0.001
Yes	52 (19.92)	24 (9.20)		
No	85 (32.57)	100 (38.31)		
Nurse			43.1342	0.000
Yes	89 (34.23)	121 (46.54)		
No	47 (18.08)	3 (1.15)		
Optometrist			115.0226	0.000
Yes	114 (52.53)	9 (4.15)		
No	20 (9.22)	74 (34.10)		
Eye specialist			30.614	0.000
Yes	87 (40.28)	81 (37.50)		
No	46 (21.30)	2 (0.93)		

*Distractor.

Table 5. Participants' view on where they can go for assistance for eye problems

Variable	Urban, *n* (%)	Rural, *n* (%)	χ^2	*p*-value
You can go to a public hospital that has eye care services			0.1041	0.747
Yes	96 (93.20)	5 (4.85)		
No	2 (1.94)	0(0)		
*You can go to a pharmacy			0.0077	0.930
Yes	35 (36.08)	57 (58.76)		
No	2 (2.06)	3 (3.09)		
You can go to a community clinic			0.0549	0.815
Yes	91 (93.81)	5 (5.15)		
No	1 (1.03)	0 (0)		
You can go to a private optometry practice, e.g. Spec-Savers			4.1979	0.040
Yes	49 (51.04)	3 (3.13)		
No	43 (44.79)	1 (1.04)		
You can go to a private doctor			0.7297	0.393
Yes	49 (51.04)	3 (3.13)		
No	43 (44.79)	1 (1.04)		

*Distractor.

Table 6. Participants' views on the treatment options for blindness

Variable	Urban, *n* (%)	Rural, *n* (%)	χ^2	*p*-value
The use of spectacles			55.6779	0.000
Yes	136 (47.39)	77 (26.83)		
No	10 (3.48)	64 (22.30)		
*The use of herbal medicines			65.2218	0.000
Yes	55 (28.65)	0 (0)		
No	49 (25.52)	88 (45.83)		
Increased intake of vitamin A			13.0131	0.000
Yes	79 (71.82)	15 (13.64)		
No	7 (6.36)	9 (8.18)		
An operation			0.8169	0.366
Yes	59 (68.60)	17 (19.77)		
No	9 (10.47)	1 (1.16)		

*Distractor.

Conclusion

Rural participants in this study appeared to be less knowledgeable than urban participants about the causes and symptoms of blindness and its treatment options. The differences observed between the rural and urban participants regarding the choice of service providers could be due to problems accessing these services rather than opinions about their utility. These findings should provide some value to those who provide primary healthcare services in rural areas as there is a clear opportunity for patient education and health promotion regarding the causes and symptoms of these common

preventable causes of blindness. Addressing this knowledge gap regarding the causes and symptoms of blindness and the treatment options is a critical first step for awareness programmes in rural areas, especially in view of the higher-than-global burden of cataracts. Without this, there will be little demand for any treatment or service. Future studies are needed to understand which health promotion interventions are effective regarding preventable blindness in rural populations in particular.

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