

Gender and use of cataract surgical services in developing countries

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Objective To determine, from the existing literature, cataract surgical coverage rates by sex and the proportion of cataract blindness that could be eliminated if women and men had equal access to cataract surgical services.

Method Methodologically sound population-based cataract surveys from developing countries were identified through a literature search. Cataract surgical coverage rates were extracted from the surveys and rates for women were compared to those for men. Peto odds ratios were calculated for each survey and a meta-analysis of the surveys was performed.

Findings From a literature review and meta-analysis of cataract surveys in developing countries, we found that the cataract surgical coverage rate was 1.2–1.7 times higher for males than for females. For females, the odds ratio of having surgery, compared to males, was 0.67 (95% confidence interval (CI): 0.60–0.74). Despite their lower coverage rate, females accounted for approximately 63% of all cataract cases in the study populations, and if they received surgery at the same rates as males, the prevalence of cataract blindness would be reduced by a median of 12.5% (range 4–21%).

Conclusion Closing the gender gap could thus significantly decrease the prevalence of cataract blindness, and gender-sensitive intervention programmes are needed to improve cataract surgical coverage among females.

Keywords Cataract extraction; Health services accessibility; Sex factors; Prejudice; Review literature; Meta-analysis; Developing countries (*source: MeSH, NLM*).

Mots clés Extraction cataracte; Accessibilité service santé; Facteur sexuel; Préjugé; Revue de la littérature; Méta-analyse; Pays en développement (*source: MeSH, INSERM*).

Palabras clave Extracción de catarata; Accesibilidad a los servicios de salud; Factores sexuales; Prejuicio; Literatura de revisión; Meta-análisis; Países en desarrollo (*fuentes: DeCS, BIREME*).

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Voir page 302 le résumé en français. En la página 302 figura un resumen en español.

Introduction

Women bear approximately two-thirds of the global burden of blindness, with cataract being the major cause in developing countries (1), and it is likely that much of the excess female blindness in these countries is due to cataract. To examine whether the problem of cataract blindness is being addressed by local services, we reviewed population-based cataract surveys of developing countries, and determined the cataract surgical coverage rate (2, 3) for males and females. This is defined as the number of cataract blind who have been operated divided by the total number of cataract blind (operated plus unoperated people) in the population.

Methods

To identify surveys of cataract blindness, we searched several computer databases, including Medline, Embase, Healthstar, Current Contents, LILAC, Scisearch and Biosis. This ensured coverage of journals from Europe, North and South America, and Asia. All databases turned up surveys listed in Medline. To identify further relevant citations, we reviewed references cited in the retrieved surveys.

All identified articles and surveys were reviewed, using a standard checklist, to select those that met the following

criteria: they were methodologically sound population-based prevalence surveys that included (but were not limited to) adults; they had a minimum sample size of 1000 and at least an 80% survey response rate; they were published between 1980 and 1999 and written in English, French, Chinese, Spanish, or Portuguese; and they reported the number of cataract blind and the number having cataract surgery, by sex.

From the eight surveys that met the above criteria, we extracted the cataract surgical coverage rate for males and females. Data were synthesized and analysed using the Cochrane Review Manager software, RevMan 4.0 for Windows. Peto odds ratios and a fixed-effects model were used to combine data across all surveys. For each survey, we also calculated how many additional females would have undergone surgery, and what percentage of current cataract blindness would be alleviated, if females had the same cataract surgical coverage rates as males.

Results

Eight surveys in the literature met the inclusion criteria (Table 1). In addition, we included unpublished population-based data from our 1999 blindness survey of 1500 adults in the Lower Shire Valley, Malawi. One survey in Nepal was unusual in that, although they had population-based data on

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Table 1. Cataract surgical coverage by gender

Survey (source)	Males			Females			Peto odds ratio	Female cataract patients (%)	Additional females ^b <i>n</i>	Blind cured ^c (%)
	Cataract blind	Operated	CSC ^a	Cataract blind	Operated	CSC				
	<i>n</i>	<i>n</i>		<i>n</i>	<i>n</i>					
China (16)	29	28	49.1 (36.1–62.1) ^d	94	55	36.9 (27.5–46.3)	0.60 (0.32–1.12)	72.3	18	14.6
China (17)	16	19	54.3 (37.8–70.9)	43	35	44.9 (33.9–55.9)	0.89 (0.31–1.52)	69.0	7	11.9
India (19)	609	369	37.7 (34.7–40.7)	1064	472	30.7 (28.2–33.2)	0.73 (0.62–0.87)	61.1	107	6.4
India (20)	363	544	60.0 (56.8–63.2)	794	763	49.0 (46.5–51.5)	0.64 (0.55–0.76)	63.2	171	14.8
Malawi	15	9	37.5 (18.1–56.9)	25	7	21.9 (7.7–36.2)	0.47 (0.15–1.51)	57.1	5	12.5
Nepal (18)	29	50	63.3 (52.7–64.4)	55	66	54.5 (45.6–63.4)	0.70 (0.39–1.24)	60.5	11	13.0
Nepal (4)	27 075	5648	17.3 (16.9–17.3)	49 670	6660	11.8 (11.5–12.1)	0.63 (0.61–0.66)	63.2	3085	4.0
South Africa (24)	13	13	50.0 (30.8–69.2)	44	20	31.2 (19.9–42.5)	0.45 (0.18–1.15)	71.1	12	21.0
Saudi Arabia (22)	45	78	63.4 (54.9–71.9)	75	65	46.4 (37.9–62.7)	0.51 (0.31–0.82)	53.2	11	9.2
All ^e							0.67 (0.60–0.74)			

^a CSC (cataract surgical coverage) for males is defined as: no. males operated for cataract / (no. males operated for cataract + no. male cataract patients). This is similarly defined for females.

^b The number of additional females who would have been operated if the female CSC is equal to male CSC.

No. additional females = (male CSC x (no. operated females + no. cataract blind females) – no. operated females).

^c The proportion of blind who would be cured if the female CSC = male CSC was calculated from: no. additional operated females / (no. cataract blind females + no. cataract blind males), as is expressed as a percentage.

^d The numbers in parentheses are 95% confidence intervals.

^e The overall Peto odds ratio for all studies (except Nepal (4)).

the number of operated cataracts, they extrapolated from a previous population-based survey to arrive at the current number of cataract blind (4). This survey is included in Table 1, but was not included in the meta-analysis because of its very large size and non-standard methods.

In all of the surveys, cataract surgical coverage rates were lower for females than males. The overall odds ratio for females (compared to males) in the meta-analysis was 0.67 (95% CI: 0.60–0.74). The data also indicate that women accounted for 63% (median) of all cataract cases in these populations, despite their lower coverage. If females had the same cataract surgical coverage as males, the median incidence of cataract blindness would be reduced by 12.5%.

Discussion

The study findings demonstrate that females do not receive cataract surgery at the same rate as males, and that closing the gender gap could significantly decrease the incidence of cataract blindness. Our findings are limited, in that the data are mostly from a few regions of Asia, with only two African countries and no Latin American countries represented. There are probably many reasons for the gender gap. In general, differences in surgical coverage rates could be attributed to gender-defined social roles, which could be confounded by socioeconomic factors, such as literacy, socioeconomic status and marital status. Documented reasons for low use of services vary by location, and include the following.

The cost of cataract surgery may be prohibitive. Costs include transportation to the hospital; loss of work for the patient or the guardian accompanying the patient; and living expenses for the guardian while the patient is in the hospital. Also, poor rural women often have less disposable income, or control of finances, than men (5).

Cataract surgery requires transport to a hospital. This reduces the use of cataract services by women because they are less likely than men to travel outside of their village for services (6).

The perceived "value" of cataract surgery is often gender-dependent (7). Research in Malawi showed that widowed females were more likely to have cataract surgery than married females, while the opposite was true for males (8). After divorce or widowhood, the probability that a woman would have surgery increased when there was a grown child or sibling to assist them in seeking surgery.

Community-based education about cataract has not been undertaken in most areas. When it is, the demand for surgery will increase, and women who meet other women who have had successful surgery are more likely to accept surgery themselves (8). Currently, however, educational programmes are usually not gender-specific. Cataract programmes in which females have lower coverage rates than males should investigate other local barriers that might exist.

Surgery coverage rates can also vary by age group. In Nepal, males aged 65–74 years received 40% more surgery than females, while those older than 75 years of age received 70% more surgery than females (4). Information on cataract surgical coverage by age and sex was not available for the other surveys.

Cataract programmes should not assume that women have equal access to cataract surgery compared to men, just because women receive 50% of the surgery performed. Due to the higher prevalence of cataract in women (due to increased risk, as well as life expectancy), women will comprise approximately 60–70% of all cataract surgeries when coverage rates are equal (1). Although cataract surgical coverage rates have not been calculated for industrialized countries, data from the United States, Canada, Great Britain and Sweden indicate that women receive 60–70% of the cataract operations there (9–15).

While the cataract surgical coverage rate is a useful indicator, in survey reports this rate must be interpreted with caution. It is intended to measure the rate at which blinding cataract is operated, but in a survey it is generally not possible to determine if the operated patient was blind, or merely visually impaired. In the eight surveys we analysed, only one utilized records with preoperative visual acuity (4). However, in most of the other surveys (16–20 and Malawi), care was taken to categorize patients into two groups: those aphakic (or pseudophakic) in one eye, without blindness in the fellow eye; and those blind in the fellow eye. In our meta-analysis, patients in the former group were not counted as having their blindness cured by surgery. In contrast, patients with bilateral aphakia were presumed to have been blind preoperatively. While imperfect, this lessens the potential for overstating the cataract surgical coverage rate.

Varying definitions of cataract are often used, as they were in the meta-analysis surveys. Although this makes it impossible to compare absolute cataract surgery rates between surveys, it does not affect the validity of comparisons between male and female coverage rates within a survey.

It has also been proposed that the “sight restoration rate” be used to measure the cataract coverage rate. It is defined as the proportion of cataract operations that restore eyesight in bilaterally cataract blind people (3). In contrast, cataract surgical coverage rates do not take into account the outcome of the surgery, and most of the studies we analysed reported only whether cataract surgery was done, not whether it successfully restored sight. Fear of a poor outcome is sometimes a reason patients refuse cataract surgery. In India, the conversion from

aphakic spectacles to intraocular lenses led to a significant increase in cataract surgical coverage (21). Recent research from Egypt has shown that women who have cataract surgery are three times less likely to have an intraocular lens implant compared to men. Furthermore, over 60% of aphakic men wore spectacles, compared to only 20% of aphakic women (Court-right P, unpublished data). In Saudi Arabia, 60% of males with refractive errors of all types wore spectacles, compared to only 14% of females (22). Multivariate analysis of a cataract surgical outcome study in India also showed that women had a 2.5-fold higher risk of a poor or very poor outcome (due to surgery-related causes or inadequate refractive correction) compared to men (23). Thus, it is possible that the sight restoration rate for women is lower than for men. In cultures in which women do not like to wear glasses, the conversion to high-quality surgery with intraocular lens may help increase uptake and outcome of cataract surgery among women.

Cataract surgical programmes need to consider gender when they evaluate their efforts. Goals for cataract surgical coverage rates should be set and analysed for males and females separately, and consideration should be given to targeting women specifically. This will necessitate investigating the local barriers that keep women from receiving surgery and designing programmes to overcome these. ■

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Résumé

Inégalités entre hommes et femmes et utilisation des services de chirurgie de la cataracte dans les pays en développement

Objectif Déterminer, à partir des données publiées, les taux de couverture de la chirurgie de la cataracte selon le sexe et la proportion des cas de cécité due à la cataracte qui pourraient être éliminés si les femmes et les hommes avaient un accès égal aux services de chirurgie de la cataracte.

Méthodes Une recherche documentaire a permis d'identifier des enquêtes sur la cataracte menées en population selon une méthodologie correcte. Les taux de couverture de la chirurgie de la cataracte ont été tirés des résultats des enquêtes et l'on a comparé les taux correspondant aux femmes et aux hommes. Les odds ratios ont été calculés selon la méthode de Peto pour chaque enquête et une méta-analyse a été réalisée sur l'ensemble des enquêtes.

Résultats D'après un examen des données publiées et une méta-analyse des enquêtes sur la cataracte réalisées dans les pays en développement, nous avons trouvé un taux de couverture de la

chirurgie de la cataracte 1,2-1,7 fois plus élevé pour les hommes que pour les femmes. Les femmes bénéficiaient de cette intervention avec un odds ratio de 0,67 (IC 95 % : 0,60-0,74) par rapport aux hommes. Bien que disposant d'un taux de couverture plus faible, elles représentaient environ 63 % de l'ensemble des cas de cataracte dans les populations étudiées, et si elles bénéficiaient d'une intervention chirurgicale aux mêmes taux que les hommes, la prévalence de la cécité due à la cataracte baisserait d'une valeur médiane de 12,5 % (intervalle : 4-21 %). **Conclusion** En réduisant les inégalités entre hommes et femmes, on pourrait faire baisser de façon significative la prévalence de la cécité due à la cataracte ; des programmes d'intervention tenant compte de ces inégalités sont par conséquent nécessaires pour améliorer le taux de couverture de la chirurgie de la cataracte chez les femmes.

Resumen

Género y uso de los servicios de cirugía de la catarata en los países en desarrollo

Objetivo Determinar, a partir de la literatura existente, las tasas de cobertura de cirugía de la catarata por sexos, así como la proporción de casos de ceguera por catarata que podría evitarse si mujeres y hombres tuvieran idéntico acceso a esos servicios quirúrgicos.

Métodos La búsqueda realizada en la literatura permitió identificar diversos estudios poblacionales metodológicamente

válidos sobre la catarata en los países en desarrollo. A partir de las tasas de cobertura quirúrgica de la catarata extraídas de esos estudios, se compararon las tasas correspondientes a las mujeres y las correspondientes a los hombres. Se calcularon las razones de posibilidades (OR) de Peto para cada estudio, y se efectuó un metaanálisis de todos los trabajos.

Resultados A partir de este examen y metaanálisis de los estudios sobre la catarata en los países en desarrollo, hallamos que la tasa de cobertura quirúrgica de la catarata era 1,2–1,7 veces mayor para los hombres que para las mujeres. En éstas, la OR para el hecho de ser intervenida quirúrgicamente fue de 0,67 (IC95%: 0,6–0,74). Pese a su menor tasa de cobertura, las mujeres explicaban aproximadamente el 63% de todos los casos de catarata en las poblaciones estudiadas, y si se sometieran a cirugía a las mismas tasas que los

hombres la prevalencia de ceguera por catarata se reduciría en un 12,5% como mediana (intervalo: 4%–21%).

Conclusión La supresión de las diferencias por razón de género podría traducirse por tanto en una disminución significativa de la prevalencia de ceguera por catarata. Hacen falta programas de intervención atentos al género para mejorar la cobertura quirúrgica de la catarata entre las mujeres.

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