

# Quantifying the economic and emotional impact of cataract surgery on patients by gender in Honduras

PRESENTER: Britton Ethridge, OMS-4

**BACKGROUND:**  
 Vision impairment affects over 1.1 billion people globally and approximately **90% of global vision impairment** is due to either uncorrected **refractive error** or **cataracts**, both treatable causes of disability. Most affected individuals are in low- and middle-income countries, with **women, rural** populations, and **ethnic minorities** disproportionately impacted. Vision impairment is linked to poverty and a reduction in productivity by up to 30%. **Cataract surgery improves income-generating activities, quality of life, and work attendance** among patients and former caregivers. Reversing vision impairment has demonstrated significant economic and health benefits, but **much of the research into the impact of cataract surgery has focused on the developed world**.  
 Additionally, vision impairment is also associated with mental health issues, particularly **depression** and **anxiety**. Cataract diagnosis nearly **doubles the risk of depression** at 12-year follow-up, and anxiety is more common among those who have visual impairment. Women are 12% more likely to experience vision impairment. This study focuses on the economic and emotional impact of cataract surgery by gender on a cohort of patients in Comayagua, Honduras.

**METHODS**  
 This was a prospective, cohort survey-based study of 75 patients undergoing cataract surgery in March 2023 in Comayagua, Honduras. Surveys were completed in-person prior to surgery and by telephone four months postoperative. Economic questions included the Simple Poverty Scorecard tailored to Honduras, questions on work, and the effect of vision impairment on work. Mental health questions included the Patient Health Questionnaire-9 to assess depression, and the Generalized Anxiety Disorder-7 to assess anxiety.

**Table 1. Baseline of all metrics by sex**

	TOTAL (n=52)		Females (n=32)		Males (n=20)		t-test p-value
	Mean	SD	Mean	SD	Mean	SD	
<b>Age</b>	66.6	13.1	65.0	14.8	69.0	9.7	0.30
<b>LogMAR VA Better Eye</b>	0.80	0.67	0.78	0.67	0.84	0.69	0.76
<b>PHQ-9</b>	6.1	4.2	6.3	3.8	5.8	4.9	0.65
<b>GAD-7</b>	3.2	3.0	2.8	2.8	3.8	3.3	0.27
							$\chi^2$
<b>Work outside home for pay</b>	17% (n=9)		16% (n=5)		20% (n=4)		0.69
<b>Income below poverty line</b>	79% (n=41)		87% (n=28)		65% (n=13)		0.05
<b>Vision Interferes with work</b>	88% (n=46)		88% (n=46)		90% (n=18)		0.78

# Focused Vision, Scattered Insight

## Is international cataract surgery still a success if it worsens anxiety?



- **Meta-analyses of mental health and vision impairment indicate that depression and anxiety are present in up to 25% of patients with vision loss**
- **Vision impairment is also associated with mental health issues, particularly depression and anxiety.**
- **75 patients had successful cataract surgery with 69% follow-up rate at 4-months**
- **Baseline: Poverty Rate - 79%      Work Rate - 17%      GAD7 - 3.2      PHQ9 - 6.1**
- **4-month: Poverty Rate - 56%      Work Rate - 37%      GAD7 - 5.6      PHQ9 - 6.0**

**Table 4. Effect of Cataract Surgery - Linear Regression Models**

	$\beta$	95% CI	p
Simple Poverty Score	0.23	-4.12, 4.58	0.92
Income Group	0.69	0.33, 1.05	<0.001
PHQ	-0.15	-1.97, 1.66	0.87
GAD	2.42	0.82, 4.03	0.003

**Table 5. Effect of Cataract Surgery - Logistic Regression Models**

	OR	95% CI	p
Work outside the home for pay	3.47	1.15, 10.48	0.027
Personal income below poverty line	0.30	0.11, 0.80	0.016
Vision interfering with ability to work	0.39	0.13, 1.12	0.090



**GLOBAL HEALTH IMPACT:**  
 Quantifying the impact of cataract surgery on individuals, families, and their communities across various geographic and socioeconomic settings is needed in order to motivate the development of effective programs for addressing preventable visual impairment. This study utilizes pre-procedure, 4-month, and 8-month surveys to objectively measure the economic and emotional impact of cataract surgery by gender on a cohort of patients in Comayagua, Honduras creating a launch point for future studies in Honduras and similar Latin

- Results:**
- **Income group** increased in the whole cohort (1.81 to 2.53,  $p < 0.005$ ), among women (1.66 to 2.53,  $p = 0.001$ ) and when controlled for age and gender ( $\beta = 0.69$ ,  $p < 0.001$ ).
  - Participants were more likely to **work outside the home** following cataract surgery (17% to 37%,  $p = 0.03$ ).
  - **Anxiety** scores increased among the whole cohort at follow-up, among women, and when controlled for age and gender.
  - A majority of participants (75%) reported that **vision continued to interfere with their ability to work** post-cataract surgery.

**Table 2. Comparison of baseline and outcomes at four months (n=52)**

	Baseline		4 Month Follow-up		Paired t-test
	Mean	SD	Mean	SD	p
Simple Poverty Scorecard	55.8	12.7	56.1	15.5	0.92
Income Group	1.81	1.1	2.53	1.1	<0.005
PHQ	6.1	4.2	6.0	6.1	0.87
GAD	3.2	3.0	5.6	6.1	<0.005
					McNemar's Test
Work outside the home for pay	17% (n=12)		37% (n=19)		0.03
Income below poverty line	79% (n=41)		56% (n=29)		0.02
Vision interfering with ability to work	88% (n=46)		75% (n=39)		0.14

**Table 3. Comparison of baseline and outcomes at four months (n=52)**

	Baseline				4 month Follow Up			
	Females (n=32)		Males (n=20)		Females (n=32)		Males (n=20)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Simple Poverty Scorecard	54.3	13.6	58.3	13.0	53.2	0.51	60.8	0.70
Income Group	1.66	1.0	2.11	1.2	2.53	0.001	2.53	0.13
PHQ	6.3	3.8	5.8	4.9	6.5	7.3	0.43	3.8
GAD	2.8	2.8	3.8	3.3	0.27	6.0	0.004	5.1
						$\chi^2$ test	McNemar's test	McNemar's test
Work outside the home for pay	16% (n=5)		20% (n=4)	0.69	25% (n=8)	0.51	55% (n=11)	0.04
Income below poverty line	88% (n=28)		65% (n=13)	0.05	53% (n=17)	0.01	60% (n=12)	0.99
Vision interfering with ability to work	88% (n=28)		90% (n=18)	0.78	75% (n=24)	0.34	75% (n=15)	0.45

**Conclusions:**  
 Cataract surgery had the anticipated effects of increasing income and work outside the home. It also had the unanticipated effects of increasing anxiety scores and failure to restore vision that facilitates work. These results challenge assumptions about the impact of cataract surgery in the developing world, and indicate that further research into the economic and emotional impacts of eye care is needed.

Full-length article:  
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