

# Impact of Free Reading Glasses on Work and Visual Function Following Cataract Surgery in Honduras

## Preliminary Data

### The POWER Trial (Post-Operative Work-Related Effect of Reading glasses)

Clinical Trial registration NCT06136780

PRESENTER: Sara O'Connor MD, MPH

#### BACKGROUND:

- Presbyopia correction has been shown to improve productivity<sup>1</sup> and income<sup>2</sup>
- Cataract surgery with a goal of emmetropia leaves patient needing near correction

#### BUT in the developing world

- Reading glasses are expensive, not widely available
- Follow-up is difficult, often missed

#### Possible solutions

1. Monovision – difficult to consent
2. Aim for low myopia – decreases distance vision; variable A-scan ability
3. Make reading glasses more available

#### PILOT studies:

Vision 'interfered with ability to work' in 75% of patients post-cataract surgery when no reading glasses given; 22% of patients post-cataract surgery when reading glasses given with surgery

#### METHODS:

1. **Randomized trial:** cataract surgery patients at clinic for the poor in Comayagua, Honduras received **FREE reading glasses (+2.50D) at time of surgery OR 3 months later**
2. **Main outcome:** Does your vision interfere with your ability to work?
3. **Secondary outcomes:**
  - a. Change in Hours spent 'WORKING'
    - i. Defined as Outside Home For Money / For Self / Inside Home
  - b. Change in Visual Function Scores
  - c. Change in Income category
4. **F/U at 3 (survey and exam) and 6 months (survey)**

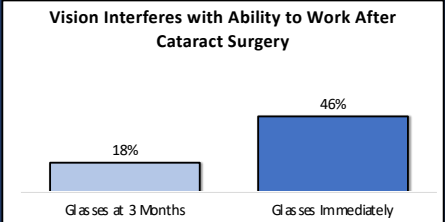
#### RESULTS:

- 73 patients enrolled
- At 3 month follow-up, 66% (n=48) of participants surveyed
  - Glasses immediately: 26/43
  - Glasses at 3 months: 22/30

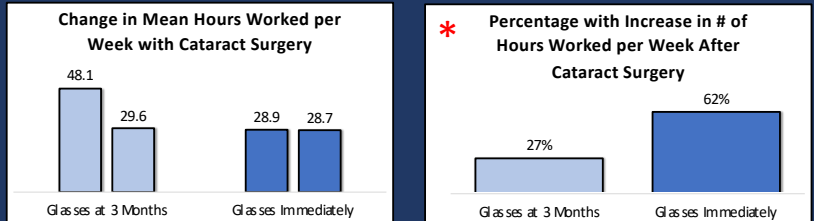


## Providing FREE reading glasses with cataract surgery improves work hours and income in developing world

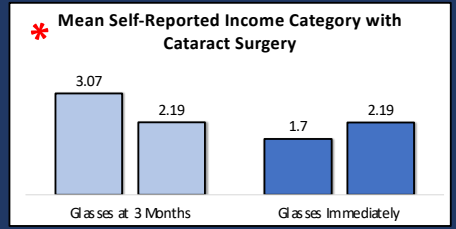
Does your vision still interfere with your ability to work?



Hours worked per week



Income Category (of 6)



Link to ACE Global Website



#### Authors:

Sara O'Connor MD, MPH  
 Raquel Wong MD  
 Emanuel De Icaza MD  
 Kevin Barber MD  
 Nathan Congdon MD MPH

## Global Health Impact

1. Reading glasses are necessary following cataract surgery for near work, and may be difficult to obtain in the developing world.
2. Distributing free reading glasses with cataract surgery increases income and ability to work.
3. Due to loss to follow-up and difficulty accessing reading glasses in much of developing world, providing free reading glasses at the time of cataract surgery may be warranted.

Table 1. Baseline Characteristics

	All Participants (n=73)	Glasses at 3 Months (n=43)	Glasses Immediately (n=30)	p
Age, Mean (SD)	68.7 (8.68)	69.5 (8.56)	67.5 (8.87)	0.35 <sup>a</sup>
Female sex, n (%)	45 (61.6%)	29 (67.4%)	16 (53.3%)	0.22 <sup>b</sup>
Log MAR VA in better eye, Mean (SD)	0.917 (0.659)	0.877 (0.655)	0.974 (0.670)	0.54 <sup>a</sup>
VA interferes with work, n (%)	72 (99%)	43 (100%)	29 (97%)	0.41 <sup>b</sup>
Hours worked per week, Mean (SD)	37 (26.4)	29.6 (21.0)	48.1 (29.5)	<0.05 <sup>a</sup>
Income Category (of 6), Mean (SD)	2.3 (1.4)	1.7 (1.1)	3.1 (1.5)	<0.001 <sup>a</sup>
Visual function score, Mean (SD)	34.5 (15.90)	35.2 (13.79)	33.5 (18.72)	0.66 <sup>a</sup>
Near Visual Function Score, Mean (SD)	41.9 (23.7)	43.0 (21.9)	40.3 (26.3)	0.64 <sup>a</sup>

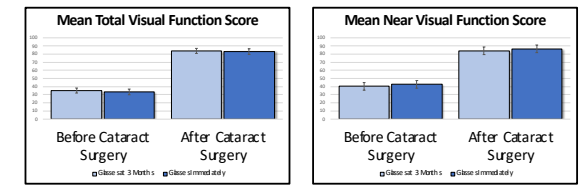
<sup>a</sup> t test  
<sup>b</sup> Chi<sup>2</sup> test

Table 2. 3 Month Follow-up

	Glasses at 3 Months (n=22)	Glasses Immediately (n=26)	p
Vision Interferes w/ Ability to Work, n (%)	4 (18.2%)	12 (46.2%)	0.04
Mean Change in Number of Hours Worked (SE)	-17.5 (7.3)	-0.35 (5.2)	0.06 <sup>a</sup>
Percentage with Increase in # Hours Worked, n (%)	6 (27.3%)	16 (61.7%)	0.02
Mean Change in VFQ - Total (SE)	49.5 (4.6)	46.5 (4.5)	0.65 <sup>a</sup>
Mean Change in VFQ - Near (SE)	42.6 (7.0)	42.1 (6.3)	0.96 <sup>a</sup>
Mean Change in Income Category (SE)	-1.1 (0.33)	0.8 (0.28)	0.0001 <sup>a</sup>

<sup>a</sup> t test  
<sup>b</sup> Chi<sup>2</sup> test

## Visual Function Scores: Before and after cataract surgery by group



#### Weaknesses:

1. **Sample size too small**
  - Allowed for significant differences between 2 groups at baseline
  - With loss to follow-up, conclusions are difficult
2. **Loss to follow-up**
3. **Questions potentially misinterpreted**
  - Outliers with 'number of hours worked'
  - VA interfering with work
4. **Some in control group received glasses prior to 3mo survey**

#### Conclusions:

- Group that received glasses immediately
- More likely to have increase in # of hours worked per week.
  - Showed increase in self-reported income category

#### Next Steps:

Further explore effect of reading glasses on income, work behavior and visual function with

- larger sample size
- refined questionnaire

#### Citations

1. Reddy PA, Congdon N, MacKenzie G, et al. Effect of providing near glasses on productivity among rural Indian tea workers with presbyopia (PROSPER): a randomised trial. *Lancet Glob Health*. 2018 Sep;6(9):e1019–e1027. doi: 10.1016/S2214-109X(18)30329-2.
2. Sehrin F, Jin L, Naher K, Das NC, et al. The effect on income of providing near vision correction to workers in Bangladesh: The THRIVE (Tradespeople and Hand-workers Rural Initiative for a Vision-enhanced Economy) randomized controlled trial. *PLoS One*. 2024 Apr 3;19(4):e0296115. doi: 10.1371/journal.pone.0296115.