



# A cross-sectional study of pediatric eye care perceptions in Ghana, Honduras, and India

Daryl Ramai <sup>a,\*</sup>, Ryan Elliott <sup>b</sup>, Shoshanna Goldin <sup>c</sup>, Tejas Pulisetty <sup>d,1</sup>

<sup>a</sup> Department of Anatomical Sciences, School of Medicine, St. George's University, True Blue, WI, Grenada

<sup>b</sup> Center for Health and Wellbeing, Program in Global Health and Health Policy, Program in Latin American Studies, Princeton University, Princeton, NJ 08544, USA

<sup>c</sup> Department of Interdisciplinary Studies, Program in Global Health, Wake Forest University, Winston-Salem, NC 27109, USA

<sup>d</sup> Institute of Statistics and Decision Sciences, Duke University, Durham, NC 27708, USA

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**Abstract** Of the more than 1.4 million blind children worldwide, 75% live in developing countries. To reduce the prevalence of childhood blindness and associated diseases, attention is given to understanding the perceptions and level of awareness held by caregivers. This understanding can enable tailored health programs to reduce the global prevalence of blindness with increased efficiency. This study, which took place in Ghana, Honduras, and India, found that 95% of caregivers believed in the importance of eye exams for children, yet 66% of caregivers said that none of their children had ever received an eye exam. Participants' major reasons for not bringing their children included the belief that their child had no eye problems along with similar and unique socio-economic barriers. Further information was gained through the use of a five-question test on basic child eye care symptoms, which showed that out of the three country locations, the studied population in India had the least understanding about pediatric eye symptoms. Further analysis revealed significant gaps in understanding of general eye health while detected knowledge barriers provide evidence that fundamental misconceptions appear to be inhibiting caregivers' competence in facilitating their children's eye health.

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\* Corresponding author. Tel.: +1 (473) 403 7284.

E-mail address: [dramai@sgu.edu](mailto:dramai@sgu.edu) (D. Ramai).

<sup>1</sup> Present address: School of Medicine, New York Medical College, Valhalla, NY 10595, USA.

## 1. Introduction

According to the World Health Organization (WHO), childhood blindness refers to diseases or conditions occurring in childhood or early adolescence, which, if left untreated, may result in severe visual impairment that is likely to be untreatable later in life [1]. The WHO estimates that 19 million children worldwide are currently visually impaired, of which 1.5 million are fully blind [2]. Furthermore, it is estimated that roughly 500,000 additional cases of childhood blindness occur each year, with a higher prevalence of these cases in lower-income populations [3]. Visual impairment is known to have a significant bearing on the health, social and future economic wellbeing of children around the world [4].

While the number of cases of blindness in children is lower than the rate among adults, the effects are still severe. As an economic drain on the family, community and nation, pediatric blindness is estimated to have a global annual cost of nearly 1 trillion US dollars [5–7]. Adding to the social and economic challenge, children who live with a significant visual impairment are less likely to attend and complete an education, find work, achieve financial independence, or establish an independent household. Pediatric visual impairment and blindness has also been linked to child mortality. Up to 60% of children die within a year of becoming blind from systemic complications or from a lack of coordinated care provided by their impoverished families [5,7]. The etiological factors linking child mortality and vision loss also include premature birth, measles, congenital rubella syndrome, and vitamin A deficiency [8]. Thus, eye care and pediatric health are inextricably bound, making it crucial that visual problems be treated as early as possible.

*Vision 2020: The Right to Sight* Initiative developed by the International Agency for Prevention of Blindness (IAPB) and WHO aims to reduce pediatric visual impairment and blindness internationally. It is estimated that 1 million blind children live in Asia, 0.3 million in Africa, 0.1 million in Latin America, and 0.1 million in the rest of the world [5]. As developing countries constitute 75% of childhood blindness, Vision 2020 is focused on improving disease control, human resource development, and health-care infrastructure in the developing world [2,10]. India, the world's second largest country by population, is home to 21% of the world's blind and 23% of the visually impaired [9,11]. India has approximately 270,000 blind children; while no valid estimates exist for Ghana, Sub-Saharan Africa has approximately 320,000 blind

children [12,13]. Similarly, with no valid estimates for the number of blind or visually impaired children in Honduras, Latin America has an estimated 100,000 blind children [13].

Several factors contribute to high rates of untreated pediatric blindness and visual impairment in Africa, Asia and Latin America. A shortage of pediatric ophthalmologists and ophthalmology centers as well as significant misunderstandings about pediatric eye issues and treatment options in rural communities have been identified in India and Ghana [14,15]. While pediatric eye care has not been well studied within Honduras, cursory pilot studies indicate that Honduran families may also be experiencing misconceptions about adult eye health and treatment options [16,17]. These misconceptions, along with unique local barriers, may be preventing families from seeking proper treatment.

Since 2000, India's National Population Policy has prioritized developing local primary healthcare services to provide basic care [18]. This is in accordance with the WHO which has prioritized combating childhood blindness by listing primary healthcare as the most important factor for early identification of eye disease symptoms [10]. However, Indians tend to bypass local sub-centers or primary health centers for specialized hospitals [19]. As a result, many Indian families are not seeking or receiving essential preventative ophthalmologic care. Similarly, a recent study in Ghana reported that rural patients did not value preventive ophthalmologic care [15]. In both countries, routine eye exams are overlooked and treatment for eye health is typically under-utilized. In Honduras, where affordability is a significant issue, families are not pursuing treatment for serious eye ailments let alone preventative care [20].

Parents and caregivers in Ghana, Honduras and India may have significant misconceptions about the causes and treatment methods for pediatric visual impairment. Without proper education of signs and symptoms of common pediatric eye ailments, parents may not recognize an eye problem in a timely manner [21]. However, by developing comprehension of basic symptoms, treatment options, and importance of timely care for pediatric eye conditions, Ghanaian, Honduran, and Indian communities could improve the overall quality of pediatric health while reducing the number of visually impaired children.

To combat pediatric visual impairment and blindness, it is essential to understand the perceptions held by caregivers. Currently, there is very limited information available about parents' and

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