Prevalence and Disparities in Child Eye Health Needs:
Insights from Peek-powered Programmes in 12 countries

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Background. Globally, at least 450 million children have a sight condition requiring treatment[1], including 312 million aged under 19 years with myopia, and myopia prevalence increasing rapidly worldwide[2]. Early identification through screening programmes ensures timely treatments and management to reduce vision impairment in school-aged children and has been demonstrated to be a largely cost-effective intervention[3]. The available literature indicates that while there has been substantial progress towards establishing an evidence base, more remains to be done to address gaps in understanding the true prevalence of eye health needs in school-aged children globally[3]. New data provides valuable insights into the eye health needs and services required, to eliminate vision loss and address eye-related issues effectively in school-aged children.

Methods. We present a cross-sectional analysis with primary data from children aged 5 to 18 years, who were reached through Peek-powered school eye health (SEH) and community eye health (CEH) programmes conducted between 2022 and 2023 across 12 countries. Eye health needs were identified following screening by trained screeners and defined as distance vision impairment in either eye (<6/9) and/or other eye conditions requiring eye care services. Data was categorised to analyse disparities among countries and within their respective Global Burden of Disease (GBD) regions, type of screening programme and age group. Adjusted odds ratio (AOR) were calculated following logistic regression analysis.

Results. A total sample of 1,581,845 participants aged 5 to 18 years was included from screening programmes in selected administrative areas (districts/councils). Of these participants, 49.5% (782,588) enrolled through school screening programmes and 50.5% (799,257) through community screening programmes at health facilities or via door to door visits.
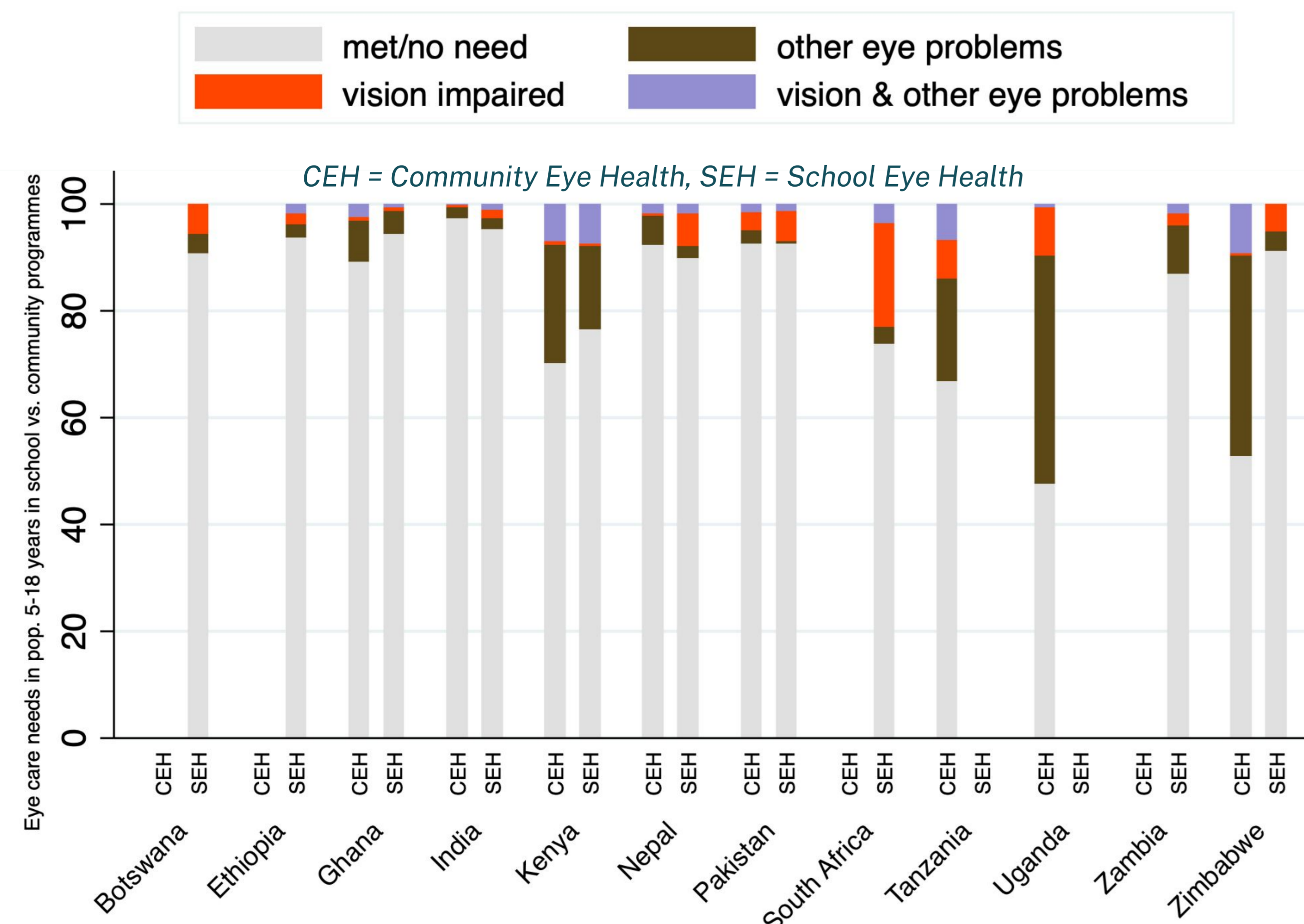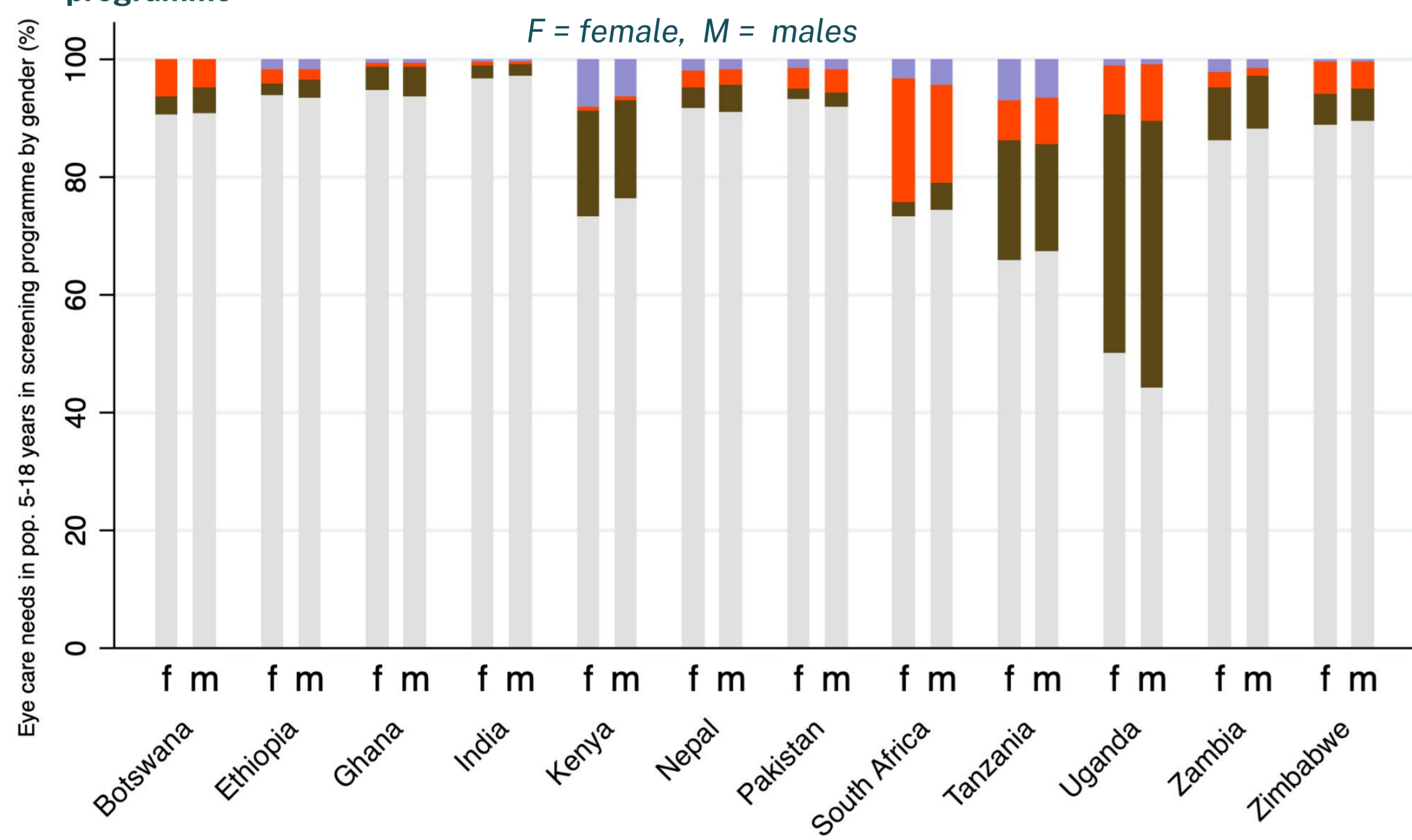
Across all countries, an average of 14.1% of screened children (13.9% of boys and 14.4% of girls) were found to have unmet eye care needs. The proportion of eye care needs among screened populations showed significant variations between countries, ranging from 3.2% in India to 52.4% in Uganda.

Using a logistic regression model and adjusted odds ratios for all included variables, children identified through community screening were 80% more likely to present unmet eye care needs compared to those reached through school based screening programmes [AOR=1.8 (1.78 - 1.82)]. Children in Sub Saharan Africa were 5 times more likely to present unmet needs than in South Asia [AOR=5.07 (5.01 - 5.13)]. Girls presented 3% more unmet needs than boys [AOR=1.03 (1.02 - 1.04)]. Children aged 11 to 18 years were 20% more likely to present unmet needs compared to younger children [AOR=1.19 (1.18 - 1.20)].

Table 1. Distribution of eye care needs found in children aged 5-18 years by country and type of programme

	Community Screening			School Screening programmes			Total		
	Reached (n)	Unmet needs (n)	Unmet needs (%)	Reached (n)	Unmet needs (n)	Unmet needs (%)	Reached (n)	Unmet Needs (n)	Unmet needs (%)
Botswana	-	-	-	68,307	6,402	9.37%	68,307	6,402	9.37%
Ethiopia	-	-	-	45,902	2,902	6.32%	45,902	2,902	6.32%
Ghana	611	67	10.97%	55,702	3,245	5.83%	56,313	3,312	5.88%
India	85,500	2,403	2.81%	21,387	1,014	4.74%	106,887	3,417	3.20%
Kenya	141,969	42,330	29.82%	361,359	85,301	23.61%	503,328	127,631	25.36%
Nepal	18,522	1,445	7.80%	12,328	1,259	10.21%	30,850	2,704	8.76%
Pakistan	517,184	38,574	7.46%	101,259	7,527	7.43%	618,443	46,101	7.45%
South Africa	-	-	-	25,963	6,846	26.37%	25,963	6,846	26.37%
Tanzania	24,746	8,264	33.40%	-	-	-	24,746	8,264	33.40%
Uganda	6,295	3,301	52.44%	-	-	-	6,295	3,301	52.44%
Zambia	-	-	-	16,732	2,191	13.09%	16,732	2,191	13.09%
Zimbabwe	4,430	2,091	47.20%	73,649	6498	8.82%	78,079	8,589	11.00%

Fig. 2. Prevalence maps of unmet eye health needs in school-aged children in Sub Saharan and South Asia Regions:
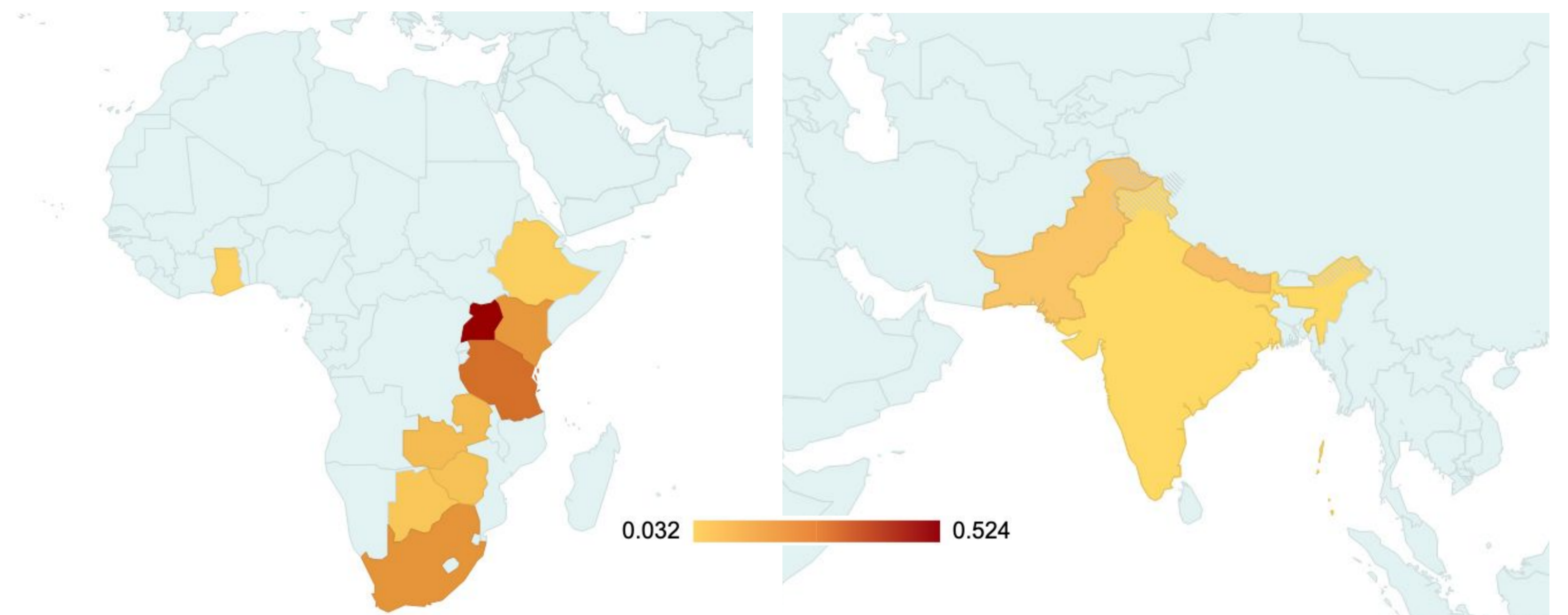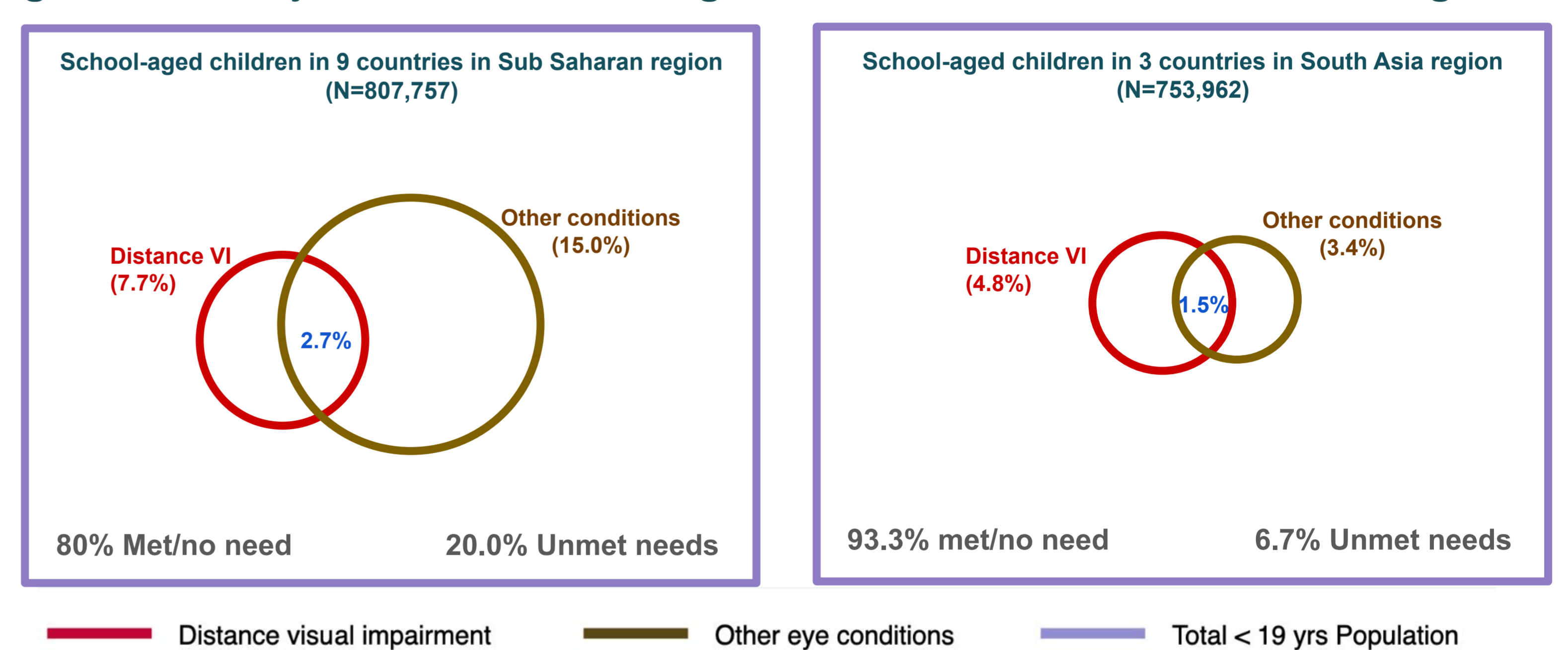

0.032 — 0.524

Fig. 1. Distribution of eye care needs in children aged 5 to 18: By country and gender by type of programme

F = female, M = males

Eye care needs in pop. 5-18 years in screening programme by gender (%)

f m — Botswana, Ethiopia, Ghana, India, Kenya, Nepal, Pakistan, South Africa, Tanzania, Uganda, Zambia, Zimbabwe

- met/no need
- vision impaired
- other eye problems
- vision & other eye problems

Fig. 3. Prevalence eye health needs in school-aged children in Sub Saharan and in South Asia regions

School-aged children in 9 countries in Sub Saharan region (N=807,757)
Distance VI (7.7%) — 2.7% — Other conditions (15.0%)
80% Met/no need — 20.0% Unmet needs

School-aged children in 3 countries in South Asia region (N=753,962)
Distance VI (4.8%) — 1.5% — Other conditions (3.4%)
93.3% met/no need — 6.7% Unmet needs

- Distance visual impairment
- Other eye conditions
- Total < 19 yrs Population

CEH = Community Eye Health, SEH = School Eye Health

Eye care needs in pop. 5-18 years in school vs. community programmes

CEH SEH — Botswana, Ethiopia, Ghana, India, Kenya, Nepal, Pakistan, South Africa, Tanzania, Uganda, Zambia, Zimbabwe

Conclusions

- Data show that there are substantial variations in school-aged children's eye care needs between countries and regions.
- Access to data at an appropriate level (region, country or district) should help to tailor interventions and allocate resources more effectively to address the needs of school-aged children in each context.
- Data from Peek-powered programmes and surveys (such as School Eye Health Rapid Assessment - SEHRA) along with effective stakeholder engagement can enhance the effectiveness and reach of children's eye health programmes, ultimately improving the eye health and overall wellbeing of children worldwide.

References:
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