

Article title: Alignment of Research Efforts With the Diabetic Retinopathy Burden of Disease and Socioeconomic Factors: An Analytical Bibliometric Study

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Supplementary file 2

Table S1. Comparing the number of publications found for the 10 most productive authors in our search with the DR-related publication counts present in their Scopus personal profiles during 2018-2022

Author	Scopus profile (N)	Search (N)
Wong, Tienyin	93	90
Sivaprasad, Sobha	86	85
Bandello, Francesco Maria	67	65
Raman, Rajiv P.G.	65	64
Peto, Tunde	62	59
Wykoff, Charles Clifton	59	54
Sun, Jennifer K.	57	53
Grauslund, Jakob	53	45
Sabanayagam, C.	50	45
Li, Xiaorong	49	44

Table S2. Variance Inflation Factors (VIF) for multivariable linear regression models (2018-2022 – main models)

Category	DR Burden Model	Variable	VIF	Category	DR Burden Model	Variable	VIF
HIC	MVI	MVI	2.03	LMIC	MVI	MVI	1.53
		DB	2.19			DB	1.65
		HDI	2.87			HDI	2.81
		HEpc (PPP)	2.39			HEpc (PPP)	2.92
		Mean	2.37			Mean	2.23
	SVI	SVI	1.7		SVI	SVI	1.62
		DB	1.98			DB	1.69
		HDI	2.85			HDI	2.77
		HEpc (PPP)	2.39			HEpc (PPP)	2.93
		Mean	2.23			Mean	2.25
	Blindness	Blindness	1.69		Blindness	Blindness	1.57
		DB	2.33			DB	1.73

		HDI	2.98			HDI	2.78
		HEpc (PPP)	2.41			HEpc (PPP)	3.11
		Mean	2.35			Mean	2.30

MVI, moderate vision impairment; SVI, severe vision impairment; DB, diabetes burden; HDI, human development index; HEpc (PPP), health expenditure per capita, purchasing power parity (\$); HIC, high-income countries; LMIC, low- and middle-income countries; DR, diabetic retinopathy.

Table S3. Spearman’s rank correlation coefficient (Rho) of the RI in 2020-2022 period toward DR research with age-standardized DR-attributable YLD rates of MVI, SVI, and blindness (for 2018-2019), and with health expenditure per capita purchasing power parity (PPP), current health expenditure (% of GDP), R & D, and HDI (Sensitivity analysis)

Category	MVI		SVI		Blindness		health expenditure per capita (PPP)		current health expenditure (% of GDP)		R & D		HDI	
	LMIC	HIC	LMIC	HIC	LMIC	HIC	LMIC	HIC	LMIC	HIC	LMIC	HIC	LMIC	HIC
Rho (ρ)	0.24	0.47	0.27	0.31	0.05	0.11	- 0.23	-0.48	- 0.24	-0.59	- 0.06	-0.39	-0.14	-0.26
P-value	0.12	0.001	0.08	0.04	0.77	0.47	0.15	0.001	0.13	< 0.001	0.73	0.009	0.36	0.09

MVI, moderate vision impairment; SVI, severe vision impairment; PPP, purchasing power parity; GDP, gross domestic product; R&D, research and development index; HDI, human development index; RI, research interest; YLD, years lived with disability; HIC, high-income countries; LMIC, low- and middle-income countries.

Table S4. Multivariable linear regression analysis of the association between diabetic retinopathy burden indicators (2018-2019) and national research interest in diabetic retinopathy during 2020-2022, stratified by country income level. Covariates included the Human Development Index (HDI), health expenditure per capita (PPP, international dollars), and diabetes burden (Age-standardized DALY rate). (Sensitivity analysis)

Category	DR burden Model	Predictor	β Coefficient	95% CI	p-value	Adjusted R ²
HIC	MVI	MVI	-0.08	-0.45 to 0.29	0.65	0.29
		DB	0.64	0.25 to 1.03	0.002	
		HDI	0.33	-0.12 to 0.78	0.15	
		HEpc (PPP)	-0.33	-0.75 to 0.08	0.11	
	SVI	SVI	-0.07	-0.41 to 0.27	0.68	0.28
		DB	0.63	0.26 to 0.99	0.002	
		HDI	0.34	-0.11 to 0.78	0.14	
		HEpc (PPP)	-0.33	-0.74 to 0.08	0.11	
LMIC	Blindness	Blindness	-0.06	-0.42 to 0.30	0.75	0.02
		DB	0.62	0.22 to 1.02	0.003	
		HDI	0.36	-0.10 to 0.82	0.12	
		HEpc (PPP)	-0.34	-0.75 to 0.07	0.10	

	DB	-0.03	-0.43 to 0.38	0.90	
	HDI	0.10	-0.43 to 0.63	0.71	
	HEpc (PPP)	-0.32	-0.86 to 0.22	0.24	
	SVI	0.24	-0.17 to 0.64	0.24	
	DB	-0.04	-0.45 to 0.37	0.85	
SVI	HDI	0.12	-0.41 to 0.65	0.65	0.02
	HEpc (PPP)	-0.31	-0.85 to 0.24	0.26	
	Blindness	-0.07	-0.48 to 0.33	0.72	
	DB	0.15	-0.28 to 0.57	0.48	
Blindness	HDI	0.13	-0.41 to 0.67	0.62	-0.02
	HEpc (PPP)	-0.31	-0.88 to 0.26	0.28	

MVI, moderate vision impairment; SVI, severe vision impairment; DB, diabetes burden; HDI, human development index; HEpc (PPP), health expenditure per capita, purchasing power parity (\$); HIC, high-income countries; LMIC, low- and middle-income countries; DR, diabetic retinopathy; CI, confidence interval

Table S5. The association of the disease burden with the RI toward DR, and its congruence with the association of the DR RI with relative burden among the five major causes of vision impairment and blindness in the selected LMICs and HICs

Low-income country	Scatterplot category(relative to whole field of medicine)*	Stacked bar chart category(relative to ophthalmology field only)*	High-income country	Scatterplot category(relative to whole field of medicine)*	Stacked bar chart category(relative to ophthalmology field only)*
LMIC			HIC		
Argentina	Green	Blue	Australia	Orange	Blue
Azerbaijan	Orange	Green	Austria	Green	Green
Bangladesh	Green	Orange	Bahrain	Blue	Blue
Bosnia and Herzegovina	Orange	Blue	Belgium	Green	Green
Brazil	Red	Red	Canada	Green	Red
Bulgaria	Green	Red	Chile	Red	Red
China	Orange	Blue	Croatia	Green	Blue
Colombia	Green	Green	Czech Republic	Red	Blue
Costa Rica	Orange	Orange	Denmark	Blue	Blue
Egypt	Blue	Blue	Finland	Green	Green
Ethiopia	Blue	Orange	France	Green	Green
Georgia	Orange	Green	Germany	Green	Green
Ghana	Green	Green	Greece	Orange	Green

India	Orange	Green	Hungary	Blue	Blue
Indonesia	Green	Orange	Iceland	Orange	Orange
Iran	Blue	Blue	Ireland	Green	Green
Iraq	Red	Blue	Israel	Blue	Green
Jordan	Blue	Blue	Italy	Red	Orange
Kazakhstan	Green	Orange	Japan	Green	Green
Kenya	Green	Green	Kuwait	Red	Blue
Lebanon	Red	Red	Latvia	Blue	Orange
Malaysia	Red	Blue	Lithuania	Orange	Green
Mexico	Blue	Blue	Netherlands	Green	Green
Morocco	Red	Red	New Zealand	Green	Orange
Nepal	Blue	Green	Norway	Green	Green
Nigeria	Green	Green	Oman	Blue	Blue
Pakistan	Blue	Orange	Poland	Green	Red
Palestine	Blue	Blue	Portugal	Blue	Red
Peru	Green	Green	Puerto Rico	Blue	Blue
Philippines	Green	Green	Qatar	Blue	Blue
Russian Federation	Green	Green	Romania	Orange	Orange
Rwanda	Red	Red	Saudi Arabia	Blue	Blue
Serbia	Green	Red	Singapore	Blue	Red

South Africa	Red	Red	Slovakia	Green	Blue
Sri Lanka	Red	Orange	Slovenia	Orange	Blue
Sudan	Blue	Blue	South Korea	Blue	Red
Syrian Arab Republic	Blue	Blue	Spain	Red	Green
Tanzania	Red	Red	Sweden	Green	Green
Thailand	Orange	Orange	Switzerland	Green	Green
Tunisia	Blue	Blue	Taiwan	Orange	Orange
Turkey	Blue	Red	Trinidad and Tobago	Blue	Red
Ukraine	Orange	Orange	United Arab Emirates	Blue	Blue
Uzbekistan	Orange	Green	United Kingdom	Orange	Orange
Viet Nam	Red	Red	United States	Red	Red

*The most common category among the three burden estimates: Average age-standardized YLD rates of MVI, SVI, and blindness in each country between 2018-2019

*Green: Low relative RI, Low relative disease burden; Red: Low relative RI, High relative disease burden/ Orange: High relative RI, Low relative disease burden/ Blue: High relative RI, High relative disease burden

HIC, high-income countries; LMIC, low- and middle-income countries.