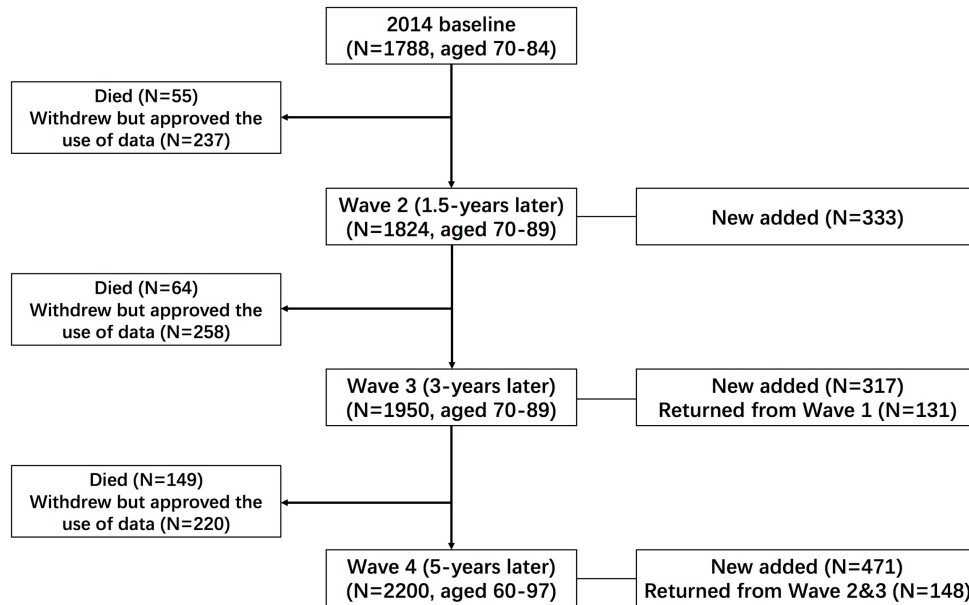


**Supplementary data of “Prevalence, Causes, and Factors associated with Visual Impairment in a Chinese Elderly Population: The Rugao Longevity and Aging Study”**



Supplementary figure. Flow diagram of the aging arm of the Rugao Longevity and Aging Study

Supplementary Table 1. Prevalence of Bilateral Visual Impairment Using the United States Definition

Group	Age(yrs)	Participants	< 6/12 and ≥ 6/60						< 6/60					
			Presenting Visual Acuity			Best-corrected Visual Acuity			Presenting Visual Acuity			Best-corrected Visual Acuity		
			No.	%	(95% CI)	No.	%	(95% CI)	No.	%	(95% CI)	No.	%	(95% CI)
Men	70-74	144	37	25.7	18.6-32.8	18	12.5	7.1-17.9	4	2.8	0.1-5.5	3	2.1	0-4.4
	75-79	374	127	34.0	29.2-38.8	85	22.7	18.5-27.0	8	2.1	0.7-3.6	6	1.6	0.3-2.9
	80-84	248	112	45.2	39.0-51.4	79	31.9	26.1-37.7	12	4.8	2.2-7.5	12	4.8	2.2-7.5
	≥85	114	70	61.4	52.5-70.3	58	50.9	41.7-60.1	10	8.8	3.6-14.0	8	7.0	2.3-11.7
	Total	880	346	39.3	36.1-42.5	240	27.3	24.3-30.2	34	3.9	2.6-5.1	29	3.3	2.1-4.5
	Age-adjusted	/	/	34.2	31.1-37.3	/	21.8	19.1-24.5	/	3.4	2.2-4.6	/	2.8	1.7-3.9
Women	70-74	164	69	42.1	34.4-49.6	33	20.1	14.0-26.3	3	1.8	0-3.9	3	1.8	0-3.9
	75-80	403	217	53.8	49.0-58.7	140	34.7	30.1-39.4	27	6.7	4.3-9.1	24	6.0	3.6-8.3
	80-84	314	194	61.8	56.4-67.2	151	48.1	42.6-53.6	36	11.5	7.9-15.0	33	10.5	7.1-13.9
	≥85	153	97	63.4	55.8-71.0	86	56.2	48.3-64.1	33	21.6	15.-28.1	32	20.9	14.5-27.4
	Total	1034	577	55.8	52.8-58.8	410	39.7	36.7-42.6	99	9.6	7.8-11.4	92	8.9	7.2-10.6
	Age-adjusted	/	/	51.7	48.6-54.7	/	33.7	30.9-36.6	/	7.3	5.7-8.9	/	6.8	5.3-8.4
Total	70-74	308	106	34.4	29.1-39.7	51	16.6	12.4-20.7	7	2.3	0.6-3.9	6	1.9	0.4-3.5
	75-80	777	344	44.3	40.8-47.8	225	29.0	25.8-32.1	35	4.5	3.0-6.0	30	3.9	2.5-5.2
	80-84	562	306	54.4	50.3-58.6	230	40.9	36.9-45.0	48	8.5	6.2-10.9	45	8.0	5.8-10.3
	≥85	267	167	62.5	56.7-68.4	144	53.9	48.0-59.9	43	16.1	11.7-20.5	40	15.0	10.7-19.3
	Total	1914	923	48.2	46.0-50.5	650	34.0	31.8-36.1	133	6.9	5.8-8.1	121	6.3	5.2-7.4
Age- and gender-standardized	≥70	/	/	43.5	41.3-45.7	/	28.2	26.1-30.2	/	5.5	4.5-6.5	/	4.9	4.0-5.9
	≥80	/	/	57.4	54.0-60.8	/	45.7	42.3-49.1	/	11.5	9.3-13.7	/	10.8	8.7-12.9

CI = confidence interval; / = data not available.

prevalence of visual impairment or blindness were estimated via the latest China National Census 2010.

Supplementary Table 2. Comparison of Age-specific Presenting Visual Impairment and Blindness in Population-based Studies

Study, year conducted	No.	Age	Race/Ethnic	Prevalence, %															
				40-49			50-59			60-69			70-79			80+			Total
				Mild VI	MSVI	Blind	Mild VI	MSVI	Blind	Mild VI	MSVI	Blind	Mild VI	MSVI	Blind	Mild VI	MSVI	Blind	
RuLAS, 2019-2020	1914	70+	Chinese (eastern rural)										21.5	21.6	2.3	23.0	38.0	7.0	
Hong Kong, 2016-2018	1952	18-90	Chinese (Hong Kong urban)	4.3	4.0	0.0	6.1	2.9	0.0	16.7	7.0	0.2	25.9 <sup>a</sup>	13.5 <sup>a</sup>	0.0 <sup>a</sup>				14.0
Nine-Province, 2014	51310	50+	Chinese (rural)				10.6 <sup>b</sup>	3.7	0.5	20.5 <sup>b</sup>	6.9	1.1	33.1 <sup>b</sup>	19.3	2.4	34.2 <sup>b</sup>	38.2	9.1	32.4
Taizhou, 2012-2013	10234	45+	Chinese (eastern urban/rural)	2.8 <sup>c</sup>	4.0 <sup>c</sup>	0.3 <sup>c</sup>	4.8	3.4	0.4	15.0	6.1	0.9	31.0	21.4	2.6	31.8	40.9	7.3	20.1
Yunnan, 2010	2742	50+	Chinese (southwest rural)					5.3	0.7		10.6	1.0		28.3	8.5		52.7	17.3	18.9
Harbin, 2007	4956	40+	Chinese (northern rural)		2.4	0.3		3.7	0.8		8.3	2.7		24.8	6.2				9.6
Handan, 2006-2007	6799	30+	Chinese (northern rural)		1.4	0.1		3.0	0.1		7.0	0.8		23.0	3.0		33.3	12.5	5.3
Chinese Eye Study 2009-2011 <sup>d</sup>	3351	40-79	Chinese (Singapore urban)	8.7	0.1		11.3	0.5		23.3	0.4		47.2	1.9					17.7
Indian Eye Study, 2007-2009 <sup>d</sup>	3400	40-79	Indian (Singapore urban)	8.5	0.3		16.2	0.5		26.3	1.1		37.8	1.9					18.7
Malay Eye Study, 2004-2006 <sup>d</sup>	3269	40-79	Malay (Singapore urban)	9.5	0.6		16.3	0.4		27.3	1.8		47.5	5.1					21.3
Chinese American Eye Study, 2009-2013	4582	50+	Chinese (urban)				4.8	0.6	0.0	7.1	1.6	0.0	15.3	2.3	0.6	33.3	6.2	0.3	3.0
Australia National Eye Health	4836	40+	Indigenous (urban/ rural)	7.2			8.0			17.8			15.5			56.0			11.2

Survey, 2015-2016 <sup>e</sup>	50+ Non-indigenous (urban/ rural)	5.0	4.0	8.2	15.0	6.7
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Data are given as the prevalence of mild VI ( $\geq 6/18$  and  $< 6/12$ ), followed by MSVI ( $\geq 3/60$  and  $< 6/18$ ) and blindness ( $< 3/60$ ) with presenting visual acuity in the better eye.

<sup>a</sup> Prevalence of presenting visual impairment and blindness for adults aged 70+ years in Hong Kong Eye Study.

<sup>b</sup> Mild VI was defined as visual acuity 6/18 to 6/12 (include 6/18 and 6/12) in Nine-Province Eye Survey.

<sup>c</sup> Prevalence of presenting visual impairment and blindness for adults aged 45-49 years in Taizhou Eye Study,

<sup>d</sup> Prevalence of presenting visual impairment and blindness was presented based on United States definition, with visual impairment ( $6/60 \leq$  visual acuity  $< 6/12$ ) and blindness (visual acuity  $< 6/60$ ) in Singapore Chinses, Indian and Malay Eye Study.

<sup>e</sup> Prevalence of presenting visual impairment and blindness (visual acuity  $< 6/12$ ) in Australia National Eye Health Survey.

VI, visual impairment; MSVI, moderate and severe visual impairment; RuLAS, the Rugao Longevity and Aging Study.

Supplementary Table 3. Comparison of Age-specific Best-corrected Visual Impairment and Blindness in Population-based Studies

Study, year conducted	No.	Age	Race/Ethnic	Prevalence, %																
				40-49			50-59			60-69			70-79			80+			Total	
				Mild VI	MSVI	Blind	Mild VI	MSVI	Blind	Mild VI	MSVI	Blind	Mild VI	MSVI	Blind	Mild VI	MSVI	Blind		
RuLAS, 2019-2020	1914	70+	Chinese (eastern rural)										12.4	14.4	1.9	18.5	30.3	6.8		33.1
Hong Kong, 2016-2018	1952	18-90	Chinese (Hong Kong urban)	0.3	0.6	0.0	0.2	0.6	0.0	1.7	0.7	0.2	12.4 <sup>a</sup>	14.7 <sup>a</sup>	0.0 <sup>a</sup>					2.0
Nine-Province, 2014	51310	50+	Chinese (rural)				2.1 <sup>b</sup>	1.3	0.3	6.7 <sup>b</sup>	2.3	0.8	21.5 <sup>b</sup>	8.4	2.0	35.0 <sup>b</sup>	21.8	8.6	15.7	
Taizhou, 2012-2013	10234	45+	Chinese (eastern urban/rural)	2.0 <sup>c</sup>	1.5 <sup>c</sup>	0.3 <sup>c</sup>	2.2	1.9	0.4	8.9	3.5	0.7	27.3	16.0	2.6	34.1	31.3	7.3	14.3	
Yunnan, 2010	2742	50+	Chinese (southwest rural)					1.8	0.6		4.5	0.8		15.5	6.4		32.7	16.4	10.5	
Harbin, 2007	4956	40+	Chinese (northern rural)		0.6	0.1		1.4	0.6		4.7	2.5		20.5 <sup>a</sup>	6.1 <sup>a</sup>				6.6	
Handan, 2006-2007	6799	30+	Chinese (northern rural)		0.1	0.0		0.6	0.0		1.4	0.5		7.4	2.2		13.9	12.5	1.5	
Liwan, 2003-2004	1399	50+	Chinese (southern urban)					0.0	0.0		1.2	0.7		6.2	0.7		11.4	1.0	15.5	
Beijing, 2001	4409	40+	Chinese (northern urban/rural)		0.3	0.1		0.3	0.1		1.2	0.3		5.5 <sup>a</sup>	1.4 <sup>a</sup>				1.4	
Shihpai, 1999-2000	1361	65+	Chinese (Taiwan urban)							2.3 <sup>d</sup>	0.8 <sup>d</sup>	0.2 <sup>d</sup>	5.4	3.4	0.7	10.0	8.3	0.6	8.2	
Kumejima, 2005-2006	3594	40+	Japanese (rural)		0.0	0.1		0.4	0.4		0.7	0.3		1.0	0.5		1.6	1.1	0.5	
Tajimi, 2000-2001	2977	40+	Japanese (urban)	0.1	0.1	0.0	0.0	0.0	0.2	0.4	0.0	0.2	0.7	1.0	0.0	5.7	3.6	0.7	1.2	
Korean National Health Survey, 2008-2010	11550	40+	Korean (urban/rural)		1.1	0.2		1.7	0.3		3.0 <sup>e</sup>	0.4 <sup>e</sup>							2.1	
Chinese Eye Study	3351	40-	Chinese	0.4	0.0		0.5	0.1		3.2	0.2		17.8	0.8					3.5	

2009-2011 <sup>f</sup>		79	(Singapore urban)																
Indian Eye Study, 2007-2009 <sup>f</sup>	3400	40-79	Indian (Singapore urban)	0.5	0.2		1.7	0.3		5.8	0.5		13.8	1.3					4.0
Malay Eye Study, 2004-2006 <sup>f</sup>	3269	40-79	Malay (Singapore urban)	0.9	0.0		2.0	0.0		6.4	0.7		25.3	1.7					5.7
Tanjong Pagar, 1997-1998	1152	40-79	Chinese (Singapore urban)	0.4	0.0		0.7	0.0		1.8	0.3		3.1	3.4					1.6
Chinese American Eye Study, 2009-2013	4582	50+	Chinese (US urban)				0.6	0.2	0.0	2.1	0.5	0.0	7.5	0.5	0.4	21.9	3.3	0.3	1.2
Los Angeles Latino, 2000-2004	6122	40+	Hispanics (US urban)	0.5	0.3	0.1	0.8	0.2	0.0	2.4	1.1	0.1	8.2	1.7	0.7	17.4	9.0	1.4	2.8
Salisbury Eye Evaluation Study, 1993-1995	2520	65-84	Non-Hispanics Whites (US urban)							0.9 <sup>d</sup>	0.9 <sup>d</sup>	0.0 <sup>d</sup>	1.8	1.1	0.0	3.1	5.4	1.2	3.5
		65-84	Blacks (US urban)							1.7 <sup>d</sup>	2.6 <sup>d</sup>	0.9 <sup>d</sup>	3.2	2.6	0.6	6.7	7.8	1.1	7.2
Baltimore, 1985-1988	5300	40+	Non-Hispanics Whites (US urban)	0.2	0.0	0.6	0.7	0.3	0.2	0.7	0.6	0.1	3.8	1.9	0.2	8.7	8.7	4.4	2.7
		40+	Blacks (US urban)	0.3	0.6	0.3	0.7	0.7	0.3	2.3	1.3	1.5	4.9	4.1	2.0	12.0	12.0	2.0	3.3
Blue Mountains, 1992-1993	3647	49+	Australian (urban)				0.5	0.1	0.0	0.8	0.3	0.0	4.4	0.7	0.3	18.0	4.4	3.9	4.7

Data are given as the prevalence of mild VI ( $\geq 6/18$  and  $< 6/12$ ), followed by MSVI ( $\geq 3/60$  and  $< 6/18$ ) and blindness ( $< 3/60$ ) with best-corrected visual acuity in the better eye.

<sup>a</sup> Prevalence of best-corrected visual impairment and blindness for adults aged 70+ years in Hong Kong Eye Study, Harbin survey and Beijing Eye Study.

<sup>b</sup> Mild VI was defined as visual acuity 6/18 to 6/12 (include 6/18 and 6/12) in Nine-Province Eye Survey.

<sup>c</sup> Prevalence of best-corrected visual impairment and blindness for adults aged 45-49 years in Taizhou Eye Study.

<sup>d</sup> Prevalence of best-corrected visual impairment and blindness for adults aged 65-69 years in Shihpai Eye Study and Salisbury Eye Evaluation Study.

<sup>e</sup> Prevalence of best-corrected visual impairment and blindness for adults aged 60+ years in Korean National Health Survey.

<sup>f</sup> Prevalence of best-corrected visual impairment and blindness was presented based on United States definition, with visual impairment ( $6/60 \leq$  visual acuity  $< 6/12$ ) and blindness (visual acuity  $< 6/60$ ) in Singapore Chinese, Indian and Malay Eye Study.

VI, visual impairment; MSVI, moderate and severe visual impairment; Longevity and Aging Study; US, the United States.