Vital Surveillances

Environmental Health Literacy Prevalence and Profiles among Shanghai Residents — Shanghai, China, 2020–2024

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ABSTRACT

Introduction: In 2019, the Chinese State Council launched the "Healthy China Initiative (2019–2030)", establishing explicit targets for residents' environmental and health literacy (EHL): reaching to 15% by 2022, to 25%, and over 2030. To identify knowledge gaps and guide targeted interventions, Shanghai implemented five consecutive EHL surveys between 2020 and 2024.

Methods: We employed a multi-stage random sampling design across five cross-sectional surveys. Associations with EHL levels were examined using χ^2 tests, one-way analysis of variance, generalized linear models, and multivariate logistic regression analyses.

Results: Among 11,220 residents aged 15–69 years assessed using the Core Questionnaire for Assessing the EHL of Chinese Residents, mean EHL scores demonstrated steady improvement. Scores increased from 55.28±15.64 points in 2020 to 61.77±15.92 points (2021), 62.13±17.14 points (2022), 62.03±16.97 points (2023), and 63.14±18.21 points (2024) (P<0.001). The proportion achieving adequate EHL (≥70 points) increased correspondingly, with age-adjusted rates rising from 18.78% in 2020 to 30.18% (2021), 33.22% (2022), 33.84% (2023), and 42.88% (2024). Among the three primary dimensions, knowledge showed the greatest improvement, increasing from 7.12% to 39.93%. Participants surveyed in 2024 had 3.50-fold higher odds of achieving adequate EHL compared with those in 2020 (odds ratio=3.50; 95% confidence interval: 3.07, 4.00).

Conclusions: Although educational attainment remained the primary determinant of EHL, targeted public health education campaigns significantly improved EHL among Shanghai residents between 2020 and 2024.

Rapid population growth and expanding human activities are intensifying environmental degradation, depleting natural resources, and increasingly threatening human health (*1*). The World Health Organization estimates that 24% of all global deaths and 28% of deaths among children under 5 years of age are attributable to modifiable environmental hazards, most of which could be prevented through the establishment of healthier environments (*2*).

Consequently, environmental health literacy (EHL) has evolved beyond mere recognition of exposure-disease linkages to encompass a comprehensive understanding that includes valuing intact ecosystems for human well-being, mastering knowledge related to ecological protection and health risk prevention, and adopting sustainable, healthy lifestyles (*3*–*5*). These competencies contribute to environmental protection and preservation while promoting individual health. As the burden of environment-related diseases escalates, EHL is attracting increasing global attention (*1*–*5*).

In July 2020, the Ministry of Ecology and Environment replaced the 2013 "Citizen EHL (Trial)" with the updated "Chinese Citizens' Ecological EHL," establishing a national framework for disseminating environmental health knowledge, attitudes, and skills (*6*–*7*). Building on this foundation, the Chinese State Council initiated the "Healthy China Initiative (2019–2030)," which established explicit targets for residents' EHL: an increase to 15% by 2022 and 25% by 2030. To identify gaps in environmental health knowledge dissemination and facilitate targeted improvements, Shanghai municipal institutions related to environmental health launched the "Environmental Health Literacy Survey and Improvement Program." A baseline EHL survey stratified by gender and age was conducted, followed by theory-driven interventions implemented district-wide. Multi-channel

dissemination strategies — including print materials, social media, subway carriage displays, and gamified quizzes — delivered environmental health education. Annual follow-up surveys tracked EHL progress, with the goal of surpassing national 2022 and 2030 benchmarks.

METHODS

Between 2020 and 2024, we conducted five annual cross-sectional surveys in Shanghai. Eligible participants included residents aged 15–69 years who had resided in the study area for at least six months during the previous year; we excluded individuals living in group quarters, such as student dormitories or employee housing (*6*–*7*). To ensure representativeness and comparability across survey years, we employed multi-stage cluster random sampling (*6*–*7*).

Initially, we calculated the minimum sample size for each stratum using equation (1):

$$n_{min} = [z_{\alpha}^{2} p(1-p)/(p \times re)^{2}] \times deff \quad (1)$$

where z=1.96 (α=0.05), p=0.5 [environmental health literacy (EHL) prevalence assumed in the absence of prior data], re=0.15 (relative error), and $deff$=1.5 (design effect).

Next, we inflated this minimum to the final target sample size as equation (2):

$$N = n_{\min} \times (\text{product of stratification factors}) \times (1 + \text{refusal rate}) \quad (2)$$

Stratification was based on gender (male, female) and survey areas (urban, suburban), resulting in four strata (2×2). Assuming a 14% refusal rate, the required sample size was at least 1,127 participants each year. The 2020 Shanghai survey followed the 2013 and 2017 trial guidelines and oversampled older adults to reflect the city's aging demographic structure. However, to align with the 2022 evaluation deadline of the Healthy China Initiative, the Ministry of Ecology and Environment issued updated national documents in 2021 (trial version) and 2022 (final version of the "Survey Protocol for Residents' Environmental Health Literacy"). Beginning in 2021, Shanghai adopted the national protocol, which employed a younger age distribution standard. This methodological shift resulted in demographic differences between the 2020 baseline and subsequent survey years (2021–2024), though the 2021–2024 surveys maintained internal demographic consistency.

The questionnaire assessed socio-demographic characteristics and incorporated the 47-item Core Questionnaire for Assessing the EHL of Chinese Residents, developed by the Ministry of Ecology and Environment. Sampling procedures and scoring methods followed the supplemental materials and protocols previously reported (*6*–*10*). Across the five survey rounds, we obtained 11,672 questionnaires and retained 11,220 valid responses, yielding a response rate of 96.13%.

Statistical Analysis

All statistical analyses were conducted using R version 4.2.2 (R Foundation for Statistical Computing, Auckland, New Zealand). Environmental health literacy scores are reported as mean±standard deviation with interquartile ranges (P25–P75). We assessed between-group differences in continuous scores using independent t-tests or one-way analysis of variance, while categorical differences in EHL levels were evaluated with χ^2 tests. To identify factors associated with EHL, we employed generalized linear models and multivariate logistic regression analyses.

RESULTS

Demographic Characteristics

We analyzed 11,220 valid questionnaires distributed across the five survey years: 3,720 in 2020, 3,180 in 2021, and 1,440 in each of 2022, 2023, and 2024. Table 1 presents the demographic characteristics of respondents, including areas, gender, age, ethnicity, education level, occupation, and per-capita monthly income. Significant differences across survey years were observed for age, education, occupation, and income distributions (P<0.05).

EHL Scores

The overall mean EHL score was 59.87±16.76, falling below the 70-point threshold for adequate literacy. No significant differences emerged by survey areas (urban *vs.* suburban), gender, or ethnicity (P>0.05). Compared with the 2020 baseline (55.28±15.64), mean scores demonstrated consistent improvement: 61.77±15.92 in 2021, 62.13±17.14 in 2022, 62.03±16.97 in 2023, and 63.14±18.21 in 2024 (P<0.001). EHL scores followed an inverted-U pattern across age groups, peaking in middle age before declining (P<0.001). In contrast, scores increased monotonically with both education and income levels (both P<0.001) and varied significantly by occupation

TABLE 1. Demographic characteristics of the study population.

Variables	Factors	2020		2021		2022		2023		2024		χ^2	*P*
		N (3,720)	(%)	*N* (3,180)	(%)	*N* (1,440)	(%)	*N* (1,440)	(%)	*N* (1,440)	(%)		
Areas	Suburban	1,973	53.0	1,620	50.9	720	50.0	720	50.0	720	50.0	7.573	0.109
	Urban	1,747	47.0	1,560	49.1	720	50.0	720	50.0	720	50.0		
Gender	Male	1,873	50.4	1,548	48.7	720	50.0	720	50.0	720	50.0	2.097	0.718
	Female	1,847	49.6	1,632	51.3	720	50.0	720	50.0	720	50.0		
Age, years	15–17	30	0.8	315	9.9	96	6.7	96	6.7	96	6.7	497.922	0.000
	18–34	915	24.6	964	30.3	432	30.0	432	30.0	432	30.0		
	35–49	1,023	27.5	1,017	32.0	432	30.0	432	30.0	432	30.0		
	50–69	1,752	47.1	884	27.8	480	33.3	480	33.3	480	33.3		
Ethnicity	Han nationality	3,687	99.1	3,156	99.3	1,432	99.4	1,430	99.3	1,436	99.7	6.088	0.193
	Others	33	0.9	24	0.7	8	0.6	10	0.7	4	0.3		
Education	Primary school and below	357	9.6	129	4.1	89	6.2	7	0.5	9	0.6	1,143.22	<0.000
level	Junior high school	917	24.7	718	22.6	310	21.5	75	5.2	54	3.8		
	Senior high school	895	24.1	874	27.5	662	46.0	632	43.9	594	41.3		
	Vocational college/undergraduate	1,493	40.1	1,413	44.4	346	24.0	681	47.3	749	52.0		
	Postgraduate and above	58	1.5	46	1.4	33	2.3	45	3.1	34	2.4		
Occupation	Farmer	263	7.1	122	3.8	94	6.5	69	4.8	67	4.7	3,839.381	0.000
	Labor in city	1,850	49.7	1,647	51.8	693	48.1	608	42.2	616	42.8		
	Civil servants and leaders	242	6.5	117	3.7	70	4.9	56	3.9	48	3.3		
	Student	91	2.5	437	13.7	152	10.6	177	12.3	182	12.6		
	Retiree	1,071	28.8	593	18.7	284	19.7	318	22.1	307	21.3		
	Others	203	5.4	264	8.3	147	10.2	212	14.7	220	15.3		
Per capita	<5,500	1,098	29.5	1,058	33.27	/	/	470	32.6	395	27.4	2,652.866	0.000
Monthly	5,500–12,999	1,927	51.8	1,415	44.5	/	/	767	53.3	717	49.8		
Income	13,000–20,999	375	10.1	467	14.69	/	/	184	12.8	223	15.5		
(CNY)*	>21,000	320	8.6	240	7.55	/	/	19	1.3	105	7.3		

Abbreviation: CNY=Chinese Yuan.
* This variable was not investigated in 2022.

(*P*<0.001). Post-hoc analyses revealed no significant differences between laborers and other occupational groups, and between civil servants and students (*P*>0.05). Detailed results are presented in Supplementary Figure S1 (available at https://weekly.chinacdc.cn).

EHL Levels

Adequate EHL was defined as a total score of ≥70 points. Across the five survey waves (2020–2024), 30.74% of participants achieved this threshold, with the proportion increasing steadily: 18.78% in 2020, 33.24% in 2021, 36.18% in 2022, 36.67% in 2023, and 44.72% in 2024 (*P*<0.001). However, Table 1 reveals a substantial shift in age distribution between 2020 and subsequent years. The 2020 survey reflected Shanghai's actual population structure (aged 15–69 years), whereas the 2021–2024 surveys adopted a younger national standard. To preserve validity and isolate temporal trends from demographic shifts, we age-standardized the 2021–2024 estimates to Shanghai's 2020 age composition. Age-adjusted EHL demonstrated significant improvement: 18.78% (2020), 30.18% (2021), 33.22% (2022), 33.84% (2023), and 42.88% (2024). The lower age-standardized rates compared with crude rates reflect the down-weighting of younger respondents when applying the 2020 reference population, which contained a higher proportion of elderly individuals. Urban residents demonstrated higher literacy than their suburban counterparts (32.00% *vs.* 29.41%), while men achieved marginally higher rates than women (31.85% *vs.* 29.63%). Age exhibited an

inverted-U pattern, with literacy peaking at 40.41% among individuals aged 18–34 years before declining to 20.45% in the 50–69 years age group. Education displayed a clear dose–response gradient: only 13.18% of participants with primary schooling or less achieved adequate EHL, compared with 47.00% of those with postgraduate education (P<0.001). Complete demographic breakdowns are presented in Table 2.

Classification EHL level represents the proportion of participants whose score in a given domain achieved or exceeded 70% of the maximum possible score for that domain. The survey evaluated three first-level domains — basic concepts, basic knowledge, and basic skills — alongside six second-level domains: basic cognition, basic attitudes, fundamental concepts, scientific knowledge, basic behavior, and basic skills. Figure 1 presents the temporal trends for both first- and second-level domains across 2020–2024. Among the first-level domains (Figure 1A), basic concepts exhibited an initial increase followed by a temporary decline before rising again, whereas basic skills maintained consistently high levels with minimal

TABLE 2. Proportion of participants achieving adequate EHL by sociodemographic characteristics.

Variables	Factors	Sample size	Total EHL level (%)	χ^2	P
Total	Sum	11,220	30.74	/	/
Year	2020	3,720	18.78	435.443	0.000
	2021	3,180	33.24		
	2022	1,440	36.18		
	2023	1,440	36.67		
	2024	1,440	44.72		
Areas	Suburban	5,467	29.41	8.813	0.003
	Urban	5,753	32.00		
Gender	Male	5,581	31.85	6.519	0.011
	Female	5,639	29.63		
Age, years	15–17	633	39.91	371.542	0.000
	18–34	3,175	40.41		
	35–49	3,336	32.34		
	50–69	4,076	20.45		
Ethnicity	Han nationality	11,143	30.69	1.333	0.248
	Others	77	36.71		
Education	Primary school and below	591	13.18	543.914	0.000
Level	Junior high school	2,074	15.56		
	Senior high school	3,656	28.98		
	Vocational college/undergraduate	4,683	40.30		
	Postgraduate and above	216	47.00		
Occupation	Farmer	615	17.69	466.704	0.000
	Labor in city	5,414	29.40		
	Civil servants and leaders	533	45.65		
	Student	1,039	43.27		
	Retiree	2,573	20.39		
	Others	1,046	33.33		
Per capita	<5,500	2,157	18.48	173.473	0.000
Monthly	5,500–12,999	4,827	33.13		
Income	13,000–20,999	1,248	33.68		
(CNY)*	≥21,000	1,548	32.90		

Abbreviation: EHL=Environmental Health Literacy, CNY=Chinese Yuan.
* This variable was not investigated in 2022.

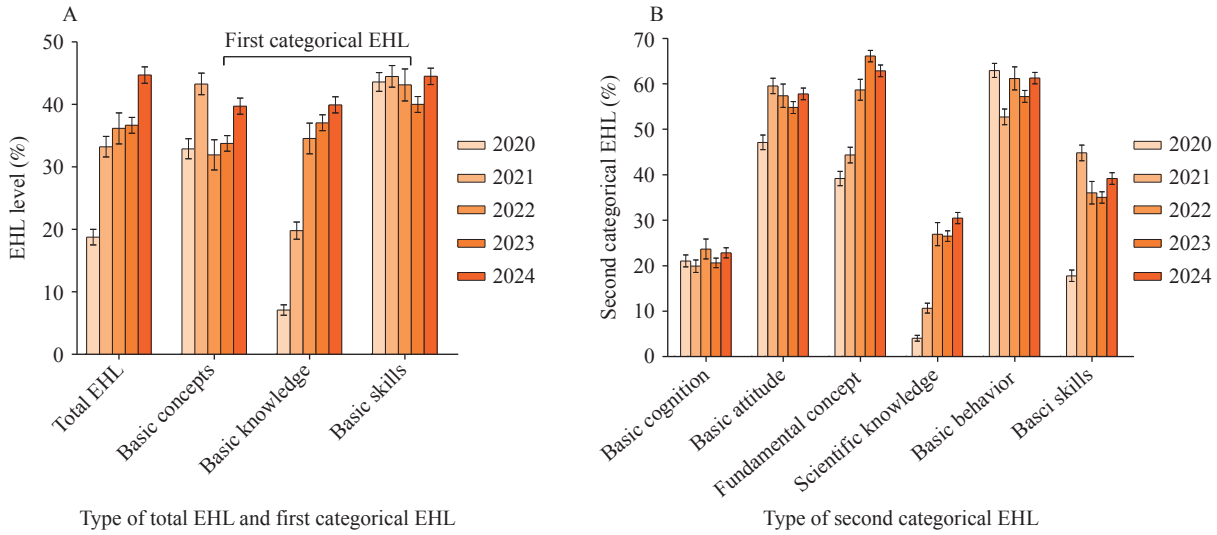

FIGURE 1. Proportion of Shanghai residents achieving adequate EHL, 2020–2024. (A) Overall EHL and its three first-level components; (B) Six second-level components.

Note: Error bars represent the standard error, calculated as $\sqrt{p(1-p)/n}$, in which p=EHL level and n=sample size.

Abbreviation: EHL=Environmental Health Literacy.

variation. In contrast, basic knowledge demonstrated the most substantial improvement, increasing markedly from 7.12% in 2020 to 19.81%, 34.58%, 37.08%, and 39.93% in 2021–2024, respectively. At the second-level (Figure 1B), basic cognition remained relatively stable near 20% throughout the study period, while scientific knowledge, fundamental concepts, and basic skills all showed considerable improvement compared with baseline measurements in 2020.

Determinants of EHL

EHL is influenced by survey year, survey area, gender, age, education, occupation and income. After adjusting for potential confounders, multivariate generalized-linear and logistic regression models were employed.

Compared with 2020, mean EHL in 2024 was 7.87 points higher (95% *CI*: 6.87, 8.87). Urban residents scored 1.78 points higher than suburban residents (95% *CI*: 1.07, 2.50). The youngest age group (15–34 years) outperformed the oldest (50–69 years) by 9.42 points (95% *CI*: 8.06, 10.79), and the highest-education group exceeded the lowest by 15.54 points (95% *CI*: 13.03, 18.05). Civil servants and senior managers scored 10.66 points higher than farmers (95% *CI*: 9.15, 12.18), while the middle-income band (CNY 13,000–21,000) scored 6.56 points above the lowest-income group (95% *CI*: 5.41, 7.71) (Figure 2A).

In the logistic model, participants in 2024 were 3.50 times more likely to achieve adequate EHL than those in 2020 (*OR*=3.50; 95% *CI*: 3.07, 4.00). Suburban residents had lower odds than urban residents (*OR*=0.89; 95% *CI*: 0.82, 0.96), as did women compared with men (*OR*=0.90; 95% *CI*: 0.83, 0.98). Relative to the youngest group, the oldest had markedly lower odds (*OR*=0.39; 95% *CI*: 0.33, 0.46), whereas the highest-education group demonstrated nearly six-fold greater odds (*OR*=5.85; *95% CI*: 4.08, 8.36) (Figure 2B).

DISCUSSION

By 2020, 18.78% of Shanghai residents had already surpassed the 2022 national target of 15% established by the Healthy China Initiative (2019–2030) (*11*). This baseline figure exceeded contemporaneous statistics from Shaanxi (17.6%) (*8*), Hubei (17.4%) (*10*), and the initial 2020 national survey (12.5%) (*12*), while closely approximating the second national survey conducted in 2022 (18.8%) (*13*). When compared with the 2022 national survey results, Shanghai residents demonstrated substantially higher overall EHL (36.18% *vs.* 18.8%) and superior performance in both basic knowledge (34.58% *vs.* 14.1%) and basic skills (43.14% *vs.* 25.7%) (*13*). However, performance in basic concepts lagged slightly behind national levels (31.94% *vs.* 36.1%). Among second-level domains, basic cognition (23.68%) and scientific knowledge (26.94%) remained the principal

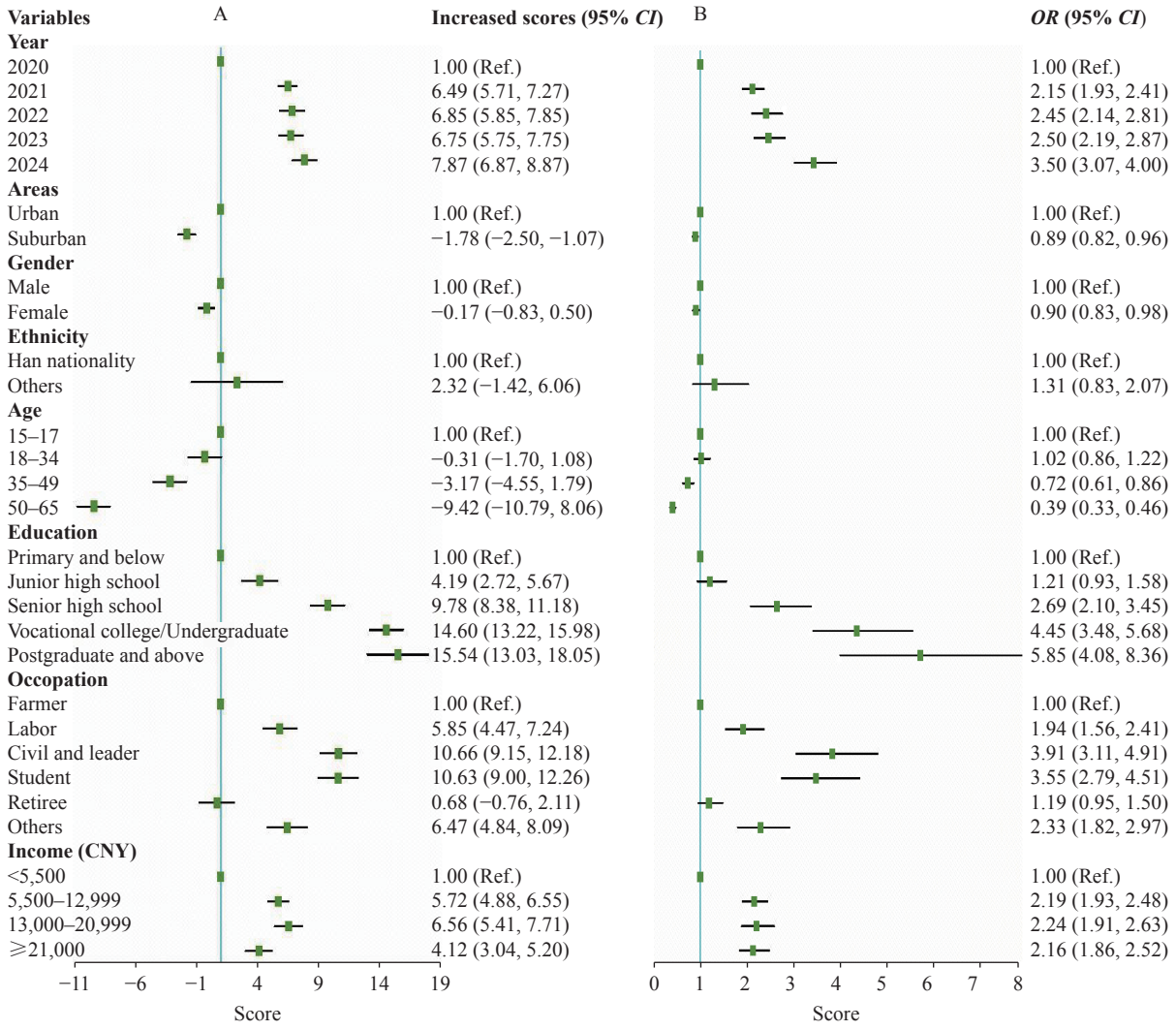

FIGURE 2. Determinants of EHL in Shanghai, 2020–2024. (A) Change in mean EHL score (generalized-linear model); (B) Odds of achieving adequate EHL (multivariate logistic regression).
Abbreviation: *CI*=confidence interval; EHL=Environmental Health Literacy; CNY=Chinese Yuan.

areas requiring improvement (*13*), though both approached the 2030 national threshold of 25% (*11*). Across occupational categories, farmers exhibited the lowest EHL levels, whereas civil servants and organizational leaders recorded the highest, reflecting underlying educational disparities. Although men achieved slightly higher scores than women (31.85% *vs.* 29.63%), this gender gap was substantially narrower than that observed in Shaanxi (25.0% *vs.* 11.5%) (*8*) or Hubei (20.6% *vs.* 15.8%) (*10*), likely attributable to higher educational attainment among women in Shanghai. Similarly, the suburban–urban disparity (29.4% *vs.* 32.0%) was less pronounced than that documented in Shaanxi (*8*), Hubei (*10*), or the 2022 national survey (*13*), indicating more balanced regional development in Shanghai.

Although demographic characteristics varied across survey years (Table 1), Spearman correlation analyses revealed moderate negative associations between age and education (r=–0.38) and weak positive associations between age and both occupation and income (r=0.14 and 0.17, respectively). These correlations demonstrate that age is interrelated with education, occupation, and income. Age standardization was therefore employed to control for these socioeconomic differences across survey years. Furthermore, these correlations indicate that older residents tend to have lower educational attainment, are more likely to work in agriculture, and earn less — explaining why education emerges as the dominant determinant of EHL. This finding mirrors earlier research demonstrating that low educational attainment predicts higher mortality, with income

serving as a key mediator (*14*–*15*); improving EHL may therefore help offset these risks by promoting healthier environments (*2*).

To sustain and further enhance EHL, Shanghai should prioritize health promotion and surveillance among vulnerable populations — specifically older adults, individuals with limited education or income, and agricultural workers — while focusing educational content on fundamental environment-health relationships and scientific knowledge regarding air quality, water safety, soil contamination, ocean health, biodiversity conservation, and climate change. Future EHL improvement initiatives should employ tailored dissemination strategies for different target audiences. For instance, short, accessible videos on environmental health topics can be delivered through social media platforms such as TikTok to reach older adults who regularly use these applications, whereas informational displays in subway stations and transit systems can effectively target commuters and office workers.

This study's principal strength lies in its five-year series of repeated cross-sectional surveys conducted in a large, representative sample, yielding actionable evidence for public health interventions. The primary limitation stems from the shift in age composition between the 2020 baseline and subsequent 2021–2024 surveys. Given Shanghai's older demographic structure, nationally age-standardized crude EHL rates for 2022–2024 overestimate city-level literacy. Consequently, locally age-standardized rates provide a more accurate measure of Shanghai-specific improvements in EHL. Additionally, unregistered renters were excluded from sampling; a targeted survey of this population is needed to fully assess the equity and reach of current health-promotion initiatives.

CONCLUSIONS

Using baseline data from 2020, we designed targeted interventions that prioritized suburban residents, older adults, and individuals with low income or education levels, delivering tailored content to each group. Core educational messages encompassed fundamental environment-health interactions, regulatory standards, water quality, environmental toxicants, air pollution, and climate change. We employed multimodal, audience-specific dissemination channels — including print media, newspapers, and paper-based materials for older adults — to address identified knowledge gaps. Five consecutive city-wide surveys demonstrated a significant monotonic increase in age-standardized EHL: 18.78% (2020), 30.18% (2021), 33.22% (2022), 33.84% (2023), and 42.88% (2024). The most substantial gains occurred in the first post-intervention year, with continued improvements observed in subsequent years. These findings substantiate the effectiveness of Shanghai's environmental health education campaigns.

Conflicts of interest: No conflicts of interest.

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SUPPLEMENTAL MATERIALS

Sampling Method

Between 2020 and 2024, we conducted five annual cross-sectional surveys in Shanghai. Eligible participants were residents aged 15–69 years who had lived in the study area for at least six months during the previous year; we excluded individuals residing in group quarters, such as student dormitories or employee housing (*1*–*2*). To ensure representativeness and enable valid comparisons across survey years, we employed multistage cluster random sampling (*1*–*2*).

We first calculated the minimum required sample size for each stratum using Equation (1):

$$n_{min} = [z_{\alpha}^{2} p(1-p)/(p \times re)^{2}] \times deff \quad (1)$$

where z=1.96 (α =0.05), p=0.5 (environmental health literacy [EHL] prevalence assumed in the absence of prior data), re=0.15 (relative error), and $deff$=1.5 (design effect).

We then adjusted this minimum to determine the final target sample size Equation (2):

$$N = n_{\min} \times (\text{product of stratification factors}) \times (1 + \text{refusal rate}) \quad (2)$$

Stratification was based on gender (male, female) and survey area (urban, suburban), yielding four strata (2 × 2). Assuming a 14% refusal rate, the required sample size was at least 1,127 participants each year.

2020–2021

We targeted 3,720 interviews in 2020 and 3,100 in 2021 — representing three- and 2.5-fold multiples of the minimum required sample (1,127), respectively, with an additional 10% buffer to account for anticipated refusals. Ten Shanghai districts were selected through multistage cluster sampling: five urban districts (Xuhui, Changning, Huangpu, Putuo, and Yangpu) and five suburban districts (Songjiang, Qingpu, Fengxian, Jinshan, and Chongming). Within each district, administrative villages or neighborhood committees served as primary sampling units (PSUs), selected proportionally to population size. Each PSU randomly identified 75 households, from which one eligible resident aged 15–69 years was interviewed per household. Gender and age distributions were balanced to reflect local demographic characteristics. Each PSU was required to provide 60 valid questionnaires to meet the annual sampling targets.

2022–2024

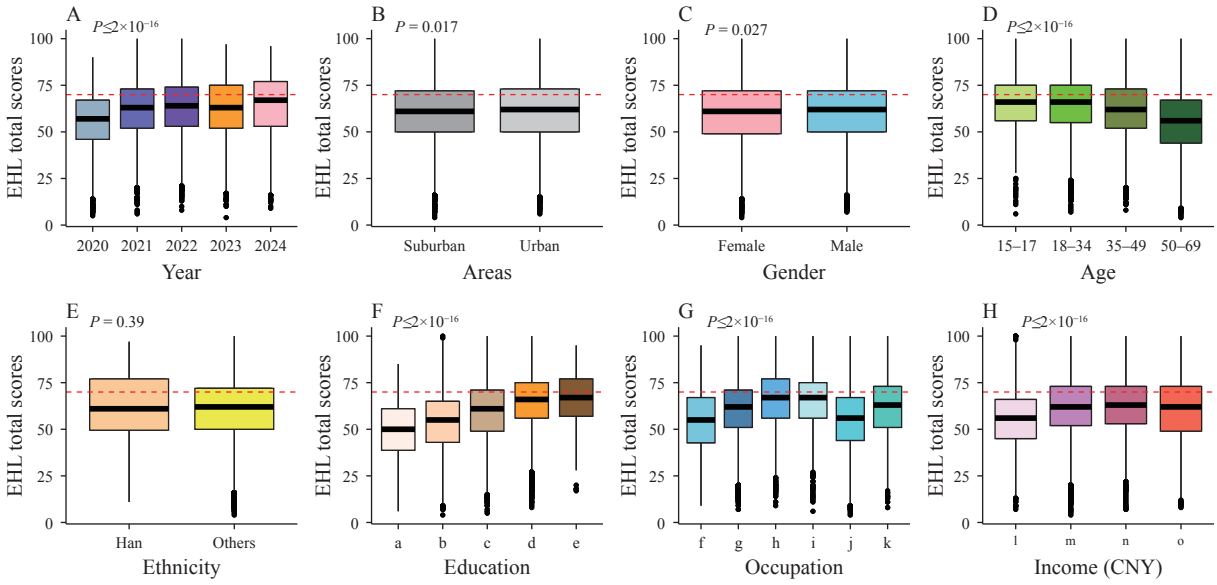
In accordance with the national ecological environment and health literacy monitoring protocol, we reduced coverage to six districts—three urban (Xuhui, Huangpu, and Yangpu) and three suburban (Qingpu, Fengxian, and Jinshan). Within each district, we selected four PSUs and implemented the same household sampling procedure: 75 households per PSU, one participant per household, with gender and age balanced to match local demographics. Each PSU yielded at least 60 valid questionnaires, ensuring a minimum of 1,440 participants annually.

Questionnaire Survey

Trained interviewers contacted eligible residents by telephone or home visits to obtain their consent and schedule appointments at either the participant's residence or the local Community Health Service Centre. Written informed consent was secured before each interview commenced. The survey protocol followed procedures established in previous studies (*3*–*5*).

The questionnaire consisted of two sections. Section A captured socio-demographic characteristics, including gender, age, education, and occupation. Section B incorporated the 47-item Core Questionnaire for Assessing the EHL of Chinese Residents, developed by the Ministry of Ecology and Environment (*1*–*2*, *3*–*5*). The assessment included 13 true/false questions (1 point each), 15 single-choice questions (2 points each), and 19 multiple-choice questions (3 points each). These items evaluated knowledge, attitudes, and behaviors regarding air quality, water safety, soil contamination, radiation exposure, noise pollution, ocean health, biodiversity conservation, climate change, household waste management, and toxic substance awareness. The total possible score was 100 points, with respondents scoring ≥ 70 classified as demonstrating adequate EHL (*1*–*2*, *3*–*5*).

Distribution of EHL Scores



SUPPLEMENTARY FIGURE S1. Distribution of total EHL scores across demographic subgroups.
Panels A–H display score distributions by survey year, geographic area, gender, age group, ethnicity, educational attainment, occupational category, and monthly income, respectively. Educational categories: a=primary school or below; b=junior high school; c=senior high school; d=vocational college/undergraduate; e=postgraduate and above. Occupational categories: f=farmer; g=city laborer; h=civil servant/leader; i=student; j=retiree; k=others. Income (CNY) categories l<5500, m=5500-12999, n=13000-20999, o≥21,000.
Abbreviation: EHL=Environmental Health Literacy, CNY=Chinese Yuan.

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