Supporting Information

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Table S1. Demographic characteristic variables of respondents

Demographic characteristic variables	Survey 1 (before FNA), $n = 300$ (%)	Survey 2 (after FNA), $n = 368$ (%)	Population of Lianyungang, $N = 4$ million (%)
Sex			
Male	47	52	51
Female	53	48	49
Age, y			
18–34	50	45	37
≥35	50	55	63
Education			
Junior high and below	39	34	78.7
High school	52	51	14.1
College and above	9	15	7.2
Occupation			
Public service (civil servants, teachers, other state employees)	17	15	39
Other	83	85	61
Household monthly income, yuan			
≤2,000	16	14	20
>2,000	84	86	80
Residence, distance (km)			
Close (<20)	36	27	—*
Moderate (20–40)	28	52	—
Remote (>40)	36	21	—

*Instead of by distance, the local Statistical Yearbook divides the area into districts and counties, and it shows that 24% of residents live in districts and 76% in counties. In survey 1, 31% of residents live in districts and 69% in counties; in survey 2, 27% live in districts and 73% in counties. These results are generally consistent with local population characteristics.

Table S2. Risk perception questionnaire (scale of 1–5)

Question topic	Question ID	Description of questions
Acceptance	1	Nuclear power should be used in our country.
	2	We should quickly increase the number of nuclear power stations in China.
	3	If there is a vote for promotion of nuclear power, I will strongly vote for it.
	4	I strongly welcome construction of nuclear power stations in my dwelling city, such as Lianyungang.
Knowledge	5	I want detailed information on the past troubles and accidents at nuclear power stations.
	6	I am interested in the influences, contributions, and problems that nuclear power presents to modern society.
	7	I often watch TV news and read news about nuclear power.
	8	I know how mechanisms of nuclear power generation operate.
	9	I am very familiar with nuclear power.
Perceived risk	10	I'm worried that an accident accompanied by environmental pollution, property loss, or health damage may occur in the "Tianwan" nuclear power plant in the future.
	11	Nuclear power plant accidents accompanied by environmental pollution, property loss, or health damage occur frequently.
	12	Within my lifetime, a severe nuclear power plant accident will eventually occur somewhere in the world, accompanied by serious health damage or massive property loss.
	13	A severe accident accompanied by serious health damage or massive property loss at a nuclear power plant will eventually occur in China as well.
	14	If you are a resident of the city constructing a nuclear power station, you feel very terrified.
	15	If a nuclear power accident happens in your city, the danger is catastrophic and dreadful to you.
	16	The risk degree of nuclear power plant accidents is greater than that of traffic accidents.
Benefit	17	Nuclear power generators can produce a greater amount of electricity and at a lower cost than thermal power can.
	18	We can use electricity at a low price with nuclear power.
	19	Nuclear power generation can provide a great amount of electricity with a small amount of fuel.
	20	Nuclear power stations could increase the residents' employment opportunity and revenue.
	21	Nuclear power stations could promote the local economic growth from the resulting construction boom.
Trust	22	We can trust electric power companies with nuclear power without anxiety.
	23	Nuclear power generation is efficient and safe.
	24	Electric power companies propagate all points of nuclear power generation to the public.
	25	The nuclear policy of the government is trustworthy.
	26	The local government openly provides the public with information about nuclear power.
	27	We can trust that government has the ability to deal with the happened nuclear power accidents.

Values range from "do not agree at all" (1) to "do not agree" (2), "neutral" (3), "agree" (4), and "totally agree" (5).

Table S3. Comparison of before and after the accident, confirmatory factor loading, and reliability of scales

Question topic	Question ID	Survey 1 (before FNA), $n = 300$		Survey 2 (after FNA), $n = 368$		Difference between surveys, t test	Factor loading	Communality
		Mean	SD	Mean	SD			
Risk acceptance	1	3.67	1.26	3.10	1.19	−6.05***	0.77[a]	0.65
	2	3.21	1.35	2.57	1.10	−6.55***	0.81	0.72
	3	3.37	1.33	2.79	1.25	−5.75***	0.78	0.67
	4	3.11	0.93	2.13	1.14	−12.22***	0.72	0.56
Knowledge	5	2.79	1.11	2.97	1.00	2.22*	0.46	0.45
	6	2.67	1.12	3.09	0.94	5.18***	0.47	0.64
	7	2.42	1.07	3.18	1.02	9.29***	0.44	0.83
	8	2.46	1.12	2.51	1.00	0.58	0.62	0.83
	9	2.28	1.02	2.50	0.97	2.82**	0.52	0.72
Perceived risk	10	2.90	1.29	4.42	0.92	17.02***	−0.83	0.83
	11	2.12	1.15	4.55	0.68	32.27***	−0.79	0.88
	12	2.86	1.46	4.87	0.35	23.35***	−0.80	0.89
	13	3.03	1.36	4.78	0.53	21.01***	−0.84	0.93
	14	2.99	1.29	4.47	0.80	17.42***	−0.83	0.86
	15	2.94	1.21	4.57	0.66	20.93***	−0.82	0.88
	16	2.91	1.19	4.64	0.65	22.70***	−0.82	0.89
Benefit	17	3.13	1.07	2.39	1.02	−9.22***	0.81	0.82
	18	3.34	1.03	2.64	1.14	−8.38***	0.81	0.86
	19	3.12	1.08	2.41	1.10	−8.31***	0.84	0.84
	20	3.45	1.05	2.54	1.16	−10.73***	0.82	0.85
	21	3.33	1.14	2.51	1.05	−9.61***	0.81	0.80
Trust	22	3.19	1.05	2.94	1.13	−2.94**	0.74	0.83
	23	3.68	0.98	2.94	1.11	−9.04***	0.79	0.81
	24	3.10	0.87	2.78	1.01	−4.44***	0.74	0.86
	25	3.06	0.89	2.84	1.09	−2.88**	0.70	0.86
	26	2.89	1.13	2.51	0.95	−4.84***	0.79	0.83
	27	2.98	1.00	2.84	1.08	−1.73	0.70	0.81

All questions are listed in Table S2. Values range from "do not agree at all" (1) to "do not agree" (2), "neutral" (3), "agree" (4), and "totally agree" (5). *$P \leq 0.05$; **$P \leq 0.01$; ***$P \leq 0.01$.

[a]Factor pattern >0.40; the confirmatory factor analysis results were run separately with the maximum likelihood factor analysis of oblique promax rotation.

Table S4. Median acceptable frequencies of nuclear events questionnaire: General criteria for rating events in INES

Description (INES level)	People and the environment	Radiological barriers and controls at facilities	Defense in depth
Major accident (7)	Major release of radioactive material with widespread health and environmental effects requiring implementation of planned and extended countermeasures		
Serious accident (6)	Significant release of radioactive material likely to require implementation of planned countermeasures		
Accident with wider consequences (5)	Limited release of radioactive material likely to require implementation of some planned countermeasures	Severe damage to reactor core	
	Several deaths from radiation	Release of large quantities of radioactive material within an installation with a high probability of significant public exposure. This might arise from a major criticality accident or fire.	
Accident with local consequences (4)	Minor release of radioactive material unlikely to result in implementation of planned countermeasures other than local food controls	Fuel melt or damage to fuel resulting in more than 0.1% release of core inventory	
	At least 1 death from radiation	Release of significant quantities of radioactive material within an installation, with a high probability of significant public exposure	
Serious incident (3)	Exposure in excess of 10× the statutory annual limit for workers.	Exposure rates >1 Sv/h in an operating area	Near-accident at a nuclear power plant, with no safety provisions remaining
	Nonlethal deterministic health effect (e.g., burns) from radiation	Severe contamination in an area not expected by design, with a low probability of significant public exposure	Lost or stolen highly radioactive sealed source
			Misdelivered highly radioactive sealed source without adequate radiation procedures in place to handle it
Incident (2)	Exposure of a member of the public in excess of 10 mSv. -Exposure of a worker in excess of the statutory annual limits.	Radiation levels >50 mSv/h in an operating area Significant contamination within the facility into an area not expected by design	Significant failures in safety provisions but with no actual consequences Found highly radioactive sealed orphan source, device, or transport package, with safety provisions intact Inadequate packaging of a highly radioactive sealed source
Anomaly Level 1			Overexposure of a member of the public in excess of statutory limits Minor problems with safety components, with significant defense in depth remaining Low-activity lost or stolen radioactive source, device, or transport package
Below scale/Level 0*			

Nuclear events are ranked in seven levels according to the International Nuclear Event Scale (INES) User's Manual.
*No safety significance.

Table S5. Median acceptable frequencies of nuclear events questionnaire: Summary results

Please choose your attitudes toward the following probable frequency of nuclear events in Tianwan nuclear power plant:	Respondents accepting the risk frequency, %*
Level 1: anomaly	
One anomaly event (level 1) in every 3 mo	10.10
One anomaly event (level 1) in every 6 mo	12.00
One anomaly event (level 1) in every 1 y	19.20
One anomaly event (level 1) in every 3 y	27.40
One anomaly event (level 1) in every 5 y	31.30
One anomaly event (level 1) in every 10 y	43.80
One anomaly event (level 1) in every 50 y	49.60
One anomaly event (level 1) in every 100 y	55.00
Level 2: incident	
One incident (level 2) in every 6 mo	9.60
One incident (level 2) in every 1 y	10.60
One incident (level 2) in every 2.5 y	16.30
One incident (level 2) in every 5 y	29.80
One incident (level 2) in every 7 y	33.20
One incident (level 2) in every 10 y	39.40
One incident (level 2) in every 50 y	42.20
One incident (level 2) in every 100 y	50.20
Level 3: serious incident	
One serious incident (level 3) in every 1 y	4.30
One serious incident (level 3) in every 2 y	11.50
One serious incident (level 3) in every 3 y	17.30
One serious incident (level 3) in every 7 y	26.00
One serious incident (level 3) in every 10 y	28.80
One serious incident (level 3) in every 20 y	40.90
One serious incident (level 3) in every 100 y	41.80
One serious incident (level 3) in every 200 y	50.60

Nuclear events are ranked in seven levels according to the International Nuclear Event Scale (INES) User's Manual.
*Percent of respondents accepting the risk frequency is calculated as the proportion of respondents who chose "fully accept," "easy to accept," or "basically accept" on the questionnaire.

Table S6. Goodness-of-fit statistics before and after Fukushima

Items	RMSEA	NNFI	CFI
Before FNA	0.080	0.98	0.98
After FNA	0.058	0.99	0.99
Reference standard	<0.08	>0.9	>0.9

CFI, comparative fit index; FNA, Fukushima nuclear accident; NNFI, non-normed fit index; RMSEA, root mean square error of approximation.