Web Table 1. Detail of each damage level, Iwanuma, Japan, 2010–2013

Grade	Criterion
No damage	Not affected.
Partial	Under 20% structural damage or inundation below the floor.
Minor	20% to 40% structural damage or inundation above the floor.
Major	40% to 50% structural damage or inundation approximately 1 meter above the floor.
Destroyed	Over 50% structural damage, inundation up to ceiling in the first floor, or completely washed away. Uninhabitable beyond repair.

Web Table 2. The Frequencies of Missing Information according to missing information on number of remaining teeth at baseline (n = 3,567), Iwanuma, Japan; 2010–2013

Characteristics		No. of remaining teeth at baseline					
		Non missing (n = 3,504)		Missing (n = 63)		Total (n = 3,567)	
		n	%	n	%	n	%
Sex							
	Men	1,539	43.9	13	20.6	1,552	43.5
	Women	1,965	56.1	50	79.4	2,015	56.5
Age (years-old)							
	65–69	1,120	32.0	7	11.1	1,127	31.6
	70–74	994	28.4	6	9.5	1,000	28.0
	75–79	736	21.0	25	39.7	761	21.3
	80–84	441	12.6	18	28.6	459	12.9
	≥85	213	6.1	7	11.1	220	6.2
Income [a]							
	Low	997	28.5	19	30.2	1,016	28.5
	Middle	1,118	31.9	17	27.0	1,135	31.8
	High	697	19.9	9	14.3	706	19.8
	Missing	692	19.7	18	28.6	710	19.9
Years of education							
	≤9	1,210	34.5	20	31.7	1,230	34.5
	10–12	1,471	42.0	15	23.8	1,486	41.7
	≥13	703	20.1	10	15.9	713	20.0
	Missing	120	3.4	18	28.6	138	3.9
Comorbid conditions before disaster							
	No	1,179	33.6	12	19.0	1,191	33.4
	Yes	2,257	64.4	31	49.2	2,288	64.1
	Missing	68	1.9	20	31.7	88	2.5
Loss of loved ones by the disaster							
	Lost	1,310	37.4	19	30.2	1,329	37.3
	No lost	2,124	60.6	43	68.3	2,167	60.8
	Missing	70	2.0	1	1.6	71	2.0
Subjective economic deterioration							
	No change/improved	2,604	74.3	48	76.2	2,652	74.3
	Became partially worse	572	16.3	11	17.5	583	16.3
	Became worse	243	6.9	3	4.8	246	6.9
	Missing	85	2.4	1	1.6	86	2.4
House damage							
	No damage	1,400	40.0	23	36.5	1,423	39.9
	Partial	1,468	41.9	28	44.4	1,496	41.9
	Minor	250	7.1	7	11.1	257	7.2

Major	130	3.7	1	1.6	131	3.7
Destroyed	156	4.5	3	4.8	159	4.5
Missing	100	2.9	1	1.6	101	2.8
Psychological distress after disaster						
None	1,980	56.5	36	57.1	2,016	56.5
Moderate	1,221	34.8	17	27.0	1,238	34.7
Severe	151	4.3	6	9.5	157	4.4
Missing	152	4.3	4	6.3	156	4.4

[a] Income was tertiled using all participants.

Web Table 3. Covariate Distribution According to Actual Disaster Damage and Instrumental Variable (n = 2,332), Iwanuma, Japan, 2010–2013.

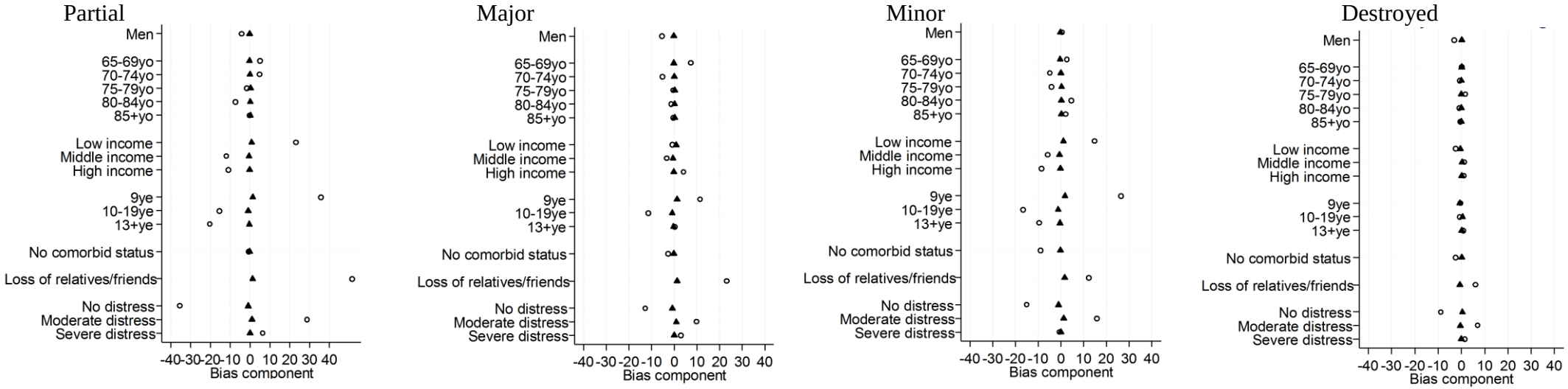
Characteristics	Actual disaster damage								Instrumental variable	
	Economical damage			House damage					Distance from coastline [a]	
	Became worse %	Became partially worse %	No change / improved %	Destroyed %	Major %	Minor %	Partial %	No damage %	Near to coastline %	Far from coastline %
Subjective economic deterioration										
No change/improved	0.0	0.0	100.0	26.2	34.5	48.2	77.6	90.2	72.0	82.2
Became partially worse	0.0	100.0	0.0	36.9	39.3	37.3	17.8	7.6	18.7	14.3
Became worse	100.0	0.0	0.0	36.9	26.2	14.5	4.6	2.2	9.2	3.5
House damage										
No damage	14.5	19.4	48.7	0.0	0.0	0.0	0.0	100.0	38.3	44.9
Partial	32.4	47.6	44.0	0.0	0.0	0.0	100.0	0.0	36.6	50.5
Minor	16.6	16.2	4.4	0.0	0.0	100.0	0.0	0.0	11.1	3.5
Major	15.2	8.6	1.6	0.0	100.0	0.0	0.0	0.0	6.6	0.9
Destroyed	21.4	8.1	1.2	100.0	0.0	0.0	0.0	0.0	7.4	0.2
Sex										
Men	51.0	52.1	47.9	46.4	51.2	45.2	47.6	50.7	47.7	49.8
Women	49.0	47.9	52.1	53.6	48.8	54.8	52.4	49.3	52.3	50.2
Age										
65–69	44.1	43.7	37.2	42.9	40.5	45.2	38.0	37.9	37.6	39.8
70–74	31.0	29.3	29.1	34.5	25.0	24.7	29.3	29.9	28.9	29.6
75–79	15.2	17.0	19.8	16.7	14.3	18.1	20.3	18.5	19.7	18.4
80–84	7.6	6.8	9.8	2.4	14.3	8.4	8.9	9.8	9.6	8.8
85+	2.1	3.1	4.1	3.6	6.0	3.6	3.5	4.0	4.3	3.4
Income										

Low	65.5	46.3	29.3	57.1	48.8	33.1	31.6	34.1	37.5	31.5
Middle	21.4	28.3	35.1	21.4	27.4	30.1	34.8	33.4	30.9	35.1
High	13.1	25.4	35.7	21.4	23.8	36.7	33.6	32.5	31.7	33.4
Years of education										
<9	53.1	39.8	26.3	63.1	53.6	38.6	26.9	27.3	35.3	25.5
10–19	35.9	42.9	48.2	33.3	32.1	37.3	48.2	48.8	42.9	49.9
13+	11.0	17.3	25.5	3.6	14.3	24.1	24.9	23.9	21.8	24.6
Comorbid status before disaster										
No	32.4	31.9	35.6	35.7	27.4	33.7	33.9	36.4	33.8	35.7
Yes	67.6	68.1	64.4	64.3	72.6	66.3	66.1	63.6	66.2	64.3
Loss of relatives/friends										
Lost	62.1	50.0	34.1	83.3	44.0	54.8	37.9	31.8	43.3	34.1
No lost	37.9	50.0	65.9	16.7	56.0	45.2	62.1	68.2	56.7	65.9
Psychological distress after disaster										
No distress	33.1	47.1	66.2	32.1	52.4	54.8	58.9	67.6	57.7	64.0
Moderate distress	52.4	47.9	30.6	58.3	45.2	39.2	36.4	29.4	38.3	31.6
Severe distress	14.5	5.0	3.2	9.5	2.4	6.0	4.7	3.1	4.0	4.4

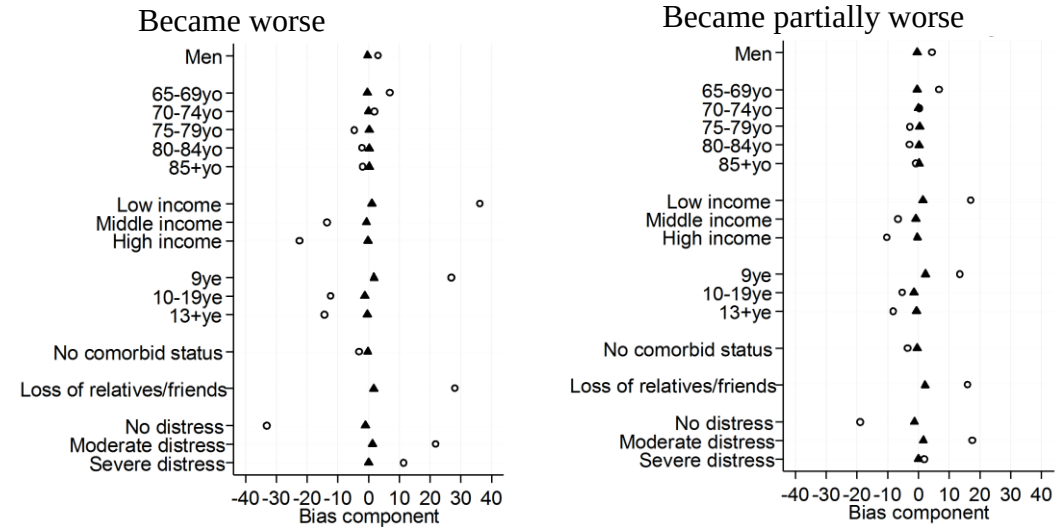
[a] divided by median

Web Figure 1. Covariate Balance (Bias Component) by Levels of the Treatment and Levels of the Proposed Instrument, Iwanuma, Japan, 2010-2013; Scaled with Scaling Factor Described in Jackson 2015; a Covariate is Balanced When the Bias Component Has a Value of Zero (x-axis).

Housing damage (ref. no damage)



Subjective economic deterioration (ref. no change/improved)



○ By actual disaster damage

▲ By instrument (divided by median)

Web Table 4. Association between Subjective Economic Deterioration and Tooth Loss, Instrumental Variable Analyses with 2SLS after Applying Multiple Imputations (n = 3,039), Iwanuma, Japan, 2010–2013

Variables		2SLS first stage		2SLS second stage	
		Coef.	95%CI	Coef.	95%CI
Subjective economic deterioration: no change/improved (1) to Became worse (3)				0.480	0.043, 0.918
Distance from coastline (km^{-1}) [a]		0.314	0.263, 0.365		
Sex					
	Men	ref.	−	ref.	−
	Women	−0.051	−0.090, −0.012	−0.095	−0.225, 0.036
Age (years-old)					
	65–69	ref.	−	ref.	−
	70–74	−0.044	−0.093, 0.004	0.180	0.014, 0.345
	75–79	−0.101	−0.156, −0.047	0.237	0.049, 0.424
	80–84	−0.122	−0.192, −0.053	0.302	0.073, 0.531
	≥85	−0.135	−0.235, −0.034	0.616	0.325, 0.907
Income before disaster (tertile categories)					
	Low	ref.	−	ref.	−
	Middle	−0.159	−0.211, −0.108	−0.113	−0.304, 0.079
	High	−0.180	−0.233, −0.127	−0.083	−0.275, 0.109
Years of education					
	≤9	ref.	−	ref.	−
	10–12	−0.083	−0.131, −0.035	−0.060	−0.221, 0.101
	≥13	−0.119	−0.176, −0.062	0.012	−0.186, 0.210
Comorbid conditions before disaster					
	No	ref.	−	ref.	−
	Yes	0.021	−0.021, 0.063	−0.107	−0.245, 0.030
Loss of loved ones by the disaster					
	No lost	ref.	−	ref.	−
	Lost	0.133	0.092, 0.174	−0.133	−0.289, 0.022
Psychological distress after disaster					
	None	ref.	−	ref.	−
	Moderate	0.188	0.146, 0.230	0.093	−0.069, 0.255
	Severe	0.394	0.294, 0.493	−0.006	−0.361, 0.349

2SLS, two-step least-square; CI, confidence interval ; Coef. coefficient

[a] F-statistic in first stage=144.33

Web Table 5. Association between Housing Damage and Tooth Loss, Instrumental Variable Analyses with 2SLS after Applying Multiple Imputations (n = 3,039), Iwanuma, Japan, 2010–2013

Variables		2SLS first stage		2SLS second stage	
		Coef.	95%CI	Coef.	95%CI
Housing damage:					
no damage (1) to destroyed (5)				0.103	0.011, 0.196
Distance from coastline (km^{-1}) [a]		1.463	1.392, 1.535		
Sex					
	Men	ref.	−	ref.	−
	Women	−0.003	−0.059, 0.053	−0.119	−0.247, 0.008
Age (years-old)					
	65–69	ref.	−	ref.	−
	70–74	−0.083	−0.152, −0.013	0.167	0.004, 0.330
	75–79	−0.025	−0.102, 0.052	0.190	0.010, 0.370
	80–84	−0.078	−0.175, 0.020	0.250	0.031, 0.470
	≥85	−0.138	−0.279, 0.004	0.565	0.283, 0.847
Income before disaster (tertile categories)					
	Low	ref.	−	ref.	−
	Middle	−0.030	−0.100, 0.039	−0.187	−0.360, −0.013
	High	0.022	−0.048, 0.093	−0.172	−0.344, −0.001
Years of education					
	≤9	ref.	−	ref.	−
	10–12	−0.071	−0.138, −0.005	−0.092	−0.244, 0.060
	≥13	−0.043	−0.124, 0.037	−0.042	−0.226, 0.143
Comorbid conditions before disaster					
	No	ref.	−	ref.	−
	Yes	0.025	−0.034, 0.085	−0.100	−0.236, 0.036
Loss of loved ones by the disaster					
	No lost	ref.	−	ref.	−
	Lost	0.197	0.140, 0.255	−0.089	−0.227, 0.049
Psychological distress after disaster					
	None	ref.	−	ref.	−
	Moderate	0.153	0.094, 0.212	0.169	0.034, 0.305
	Severe	0.205	0.066, 0.343	0.163	−0.138, 0.464

2SLS, two-step least-square; CI, confidence interval ; Coef. coefficient

[a] F-statistic in first stage=1622.93

Web Table 6. Association between Subjective Economic Deterioration as Categorical Variable and Tooth Loss, after Applying Multiple Imputations (n= 3,039), Iwanuma, Japan, 2010–2013

Variables	Multivariable probit regression (without IV)		APE	
	Coef.	95%CI	Pr.	95%CI
Subjective economic deterioration				
No change/improved	ref.	−	ref.	−
Became partially worse	0.127	−0.042, 0.295	0.022	−0.009, 0.052
Became worse	0.124	−0.126, 0.373	0.021	−0.024, 0.067
Sex				
Men	ref.	−	ref.	−
Women	−0.113	−0.241, 0.014	−0.019	−0.040, 0.003
Age (years-old)				
65–69	ref.	−	ref.	−
70–74	0.162	−0.000, 0.325	0.025	−0.000, 0.050
75–79	0.194	0.013, 0.374	0.030	0.001, 0.059
80–84	0.248	0.029, 0.467	0.040	0.002, 0.078
≥85	0.561	0.280, 0.842	0.110	0.042, 0.179
Income before disaster (tertile categories)				
Low	ref.	−	ref.	−
Middle	−0.182	−0.356, −0.008	−0.031	−0.059, −0.002
High	−0.161	−0.333, 0.012	−0.027	−0.056, 0.002
Years of education				
≤9	ref.	−	ref.	−
10–12	−0.110	−0.260, 0.040	−0.018	−0.043, 0.007
≥13	−0.053	−0.236, 0.130	−0.009	−0.040, 0.022
Comorbid conditions before disaster				
No	ref.	−	ref.	−
Yes	−0.097	−0.233, 0.038	−0.016	−0.040, 0.007
Loss of loved ones by the disaster				
Not lost	ref.	−	ref.	−
Lost	−0.063	−0.197, 0.070	−0.010	−0.032, 0.011
Psychological distress after disaster				
None	ref.	−	ref.	−
Moderate	0.172	0.036, 0.308	0.029	0.006, 0.052
Severe	0.169	−0.133, 0.471	0.028	−0.027, 0.084

APE, average partial effect; CI, confidence interval; Coef. coefficient; Pr. probability; ref., reference

Web Table 7. Association between Housing Damage as Categorical Variable and Tooth Loss, after Applying Multiple Imputations (n= 3,039), Iwanuma, Japan, 2010–2013

Variables		Multivariable probit regression (without IV)		APE	
		Coef.	95%CI	Coef.	95%CI
Housing damage					
	No damage	ref.	−	ref.	−
	Partial	0.011	−0.130, 0.152	0.002	−0.021, 0.024
	Minor	0.236	0.001, 0.471	0.043	−0.004, 0.090
	Major	−0.012	−0.357, 0.332	−0.002	−0.055, 0.052
	Destroyed	0.292	−0.015, 0.600	0.055	−0.011, 0.122
Sex					
	Men	ref.	−	ref.	−
	Women	−0.120	−0.248, 0.008	−0.020	−0.041, 0.001
Age (years-old)					
	65–69	ref.	−	ref.	−
	70–74	0.165	0.002, 0.328	0.025	0.000, 0.050
	75–79	0.187	0.007, 0.367	0.029	0.000, 0.058
	80–84	0.250	0.031, 0.469	0.040	0.002, 0.079
	≥85	0.562	0.281, 0.842	0.110	0.042, 0.179
Income before disaster (tertile categories)					
	Low	ref.	−	ref.	−
	Middle	−0.187	−0.360, −0.014	−0.031	−0.060, −0.003
	High	−0.176	−0.348, −0.004	−0.030	−0.058, −0.001
Years of education					
	≤9	ref.	−	ref.	−
	10–12	−0.102	−0.252, 0.049	−0.017	−0.042, 0.008
	≥13	−0.049	−0.233, 0.134	−0.008	−0.040, 0.023
Comorbid conditions before disaster					
	No	ref.	−	ref.	−
	Yes	−0.094	−0.230, 0.042	−0.016	−0.039, 0.007
Loss of loved ones by the disaster					
	Not lost	ref.	−	ref.	−
	Lost	−0.050	−0.210, 0.110	−0.007	−0.031, 0.016
Psychological distress after disaster					
	None	ref.	−	ref.	−
	Moderate	0.179	0.045, 0.314	0.030	0.007, 0.053
	Severe	0.173	−0.127, 0.473	0.029	−0.026, 0.084

APE, average partial effect; CI, confidence interval; Coef. coefficient; Pr. probability; ref., reference

Web Table 8. Association between Subjective Economic Deterioration and Tooth Loss, Instrumental Variable Analyses with CML using Complete Case (n = 2,332), Iwanuma, Japan, 2010–2013

Variables	Multivariable probit regression (without IV)		CML first stage		CML second stage		APE	
	Coef.	95%CI	Coef.	95%CI	Coef.	95%CI	Pr.	95%CI
Subjective economic deterioration: no change/improved (1) to Became worse (3)	0.124	−0.006, 0.254			0.543	0.037, 1.049	0.085	−0.004, 0.175
Distance from coastline (km^{-1}) [a]			0.307	0.249, 0.366				
Sex								
Men	ref.	−	ref.	−	ref.	−	ref.	−
Women	−0.158	−0.310, −0.005	−0.075	−0.118, −0.032	−0.120	−0.278, 0.037	−0.019	−0.043, 0.005
Age (years-old)								
65–69	ref.	−	ref.	−	ref.	−	ref.	−
70–74	0.191	0.003, 0.379	−0.046	−0.099, 0.006	0.200	0.015, 0.384	0.031	0.002, 0.061
75–79	0.136	−0.081, 0.354	−0.084	−0.144, −0.023	0.171	−0.046, 0.388	0.027	−0.008, 0.062
80–84	0.224	−0.050, 0.498	−0.115	−0.194, −0.035	0.274	0.000, 0.548	0.043	−0.001, 0.087
≥85	0.629	0.289, 0.968	−0.174	−0.291, −0.058	0.693	0.355, 1.031	0.109	0.052, 0.166
Income before disaster (tertile categories)								
Low	ref.	−	ref.	−	ref.	−	ref.	−
Middle	−0.162	−0.347, 0.024	−0.170	−0.223, −0.117	−0.078	−0.288, 0.132	−0.012	−0.044, 0.020
High	−0.159	−0.350, 0.032	−0.188	−0.242, −0.134	−0.067	−0.286, 0.152	−0.011	−0.044, 0.023
Years of education								
≤9	ref.	−	ref.	−	ref.	−	ref.	−
10–12	−0.065	−0.245, 0.114	−0.097	−0.149, −0.044	−0.004	−0.196, 0.188	−0.001	−0.031, 0.030
≥13	−0.001	−0.215, 0.213	−0.137	−0.200, −0.075	0.079	−0.152, 0.311	0.012	−0.025, 0.049
Comorbid conditions before disaster								
No	ref.	−	ref.	−	ref.	−	ref.	−
Yes	−0.077	−0.236, 0.082	0.022	−0.023, 0.068	−0.083	−0.240, 0.073	−0.013	−0.038, 0.012
Loss of loved ones by the disaster								

	No lost	ref.	−	ref.	−	ref.	−	ref.	−
	Lost	−0.046	−0.205, 0.113	0.126	0.081, 0.171	−0.116	−0.292, 0.061	−0.018	−0.047, 0.011
Psychological distress after disaster									
	None	ref.	−	ref.	−	ref.	−	ref.	−
	Moderate	0.134	−0.027, 0.295	0.167	0.121, 0.213	0.053	−0.134, 0.240	0.008	−0.020, 0.037
	Severe	0.228	−0.119, 0.575	0.375	0.267, 0.483	0.052	−0.352, 0.456	0.008	−0.055, 0.071

APE, average partial effect; CI, confidence interval; CML, conditional maximum likelihood; Coef. coefficient; IV, instrumental variable; Pr. probability; ref., reference

[a] F-statistic in first stage=144.33

Web Table 9. Association between Housing Damage and Tooth Loss, Instrumental Variable Analyses with CML using Complete Case (n = 2,332), Iwanuma, Japan, 2010–2013

Variables	Multivariable probit regression (without IV)		CML first stage		CML second stage		APE	
	Coef.	95%CI	Coef.	95%CI	Coef.	95%CI	Pr.	95%CI
Housing damage: no damage (1) to destroyed (5)	0.056	−0.019, 0.132			0.110	0.001, 0.219	0.016	−0.000, 0.033
Distance from coastline (km^{-1}) [a]			1.533	1.451, 1.615				
Sex								
Men	ref.	−	ref.	−	ref.	−	ref.	−
Women	−0.167	−0.319, −0.015	−0.001	−0.062, 0.059	−0.166	−0.318, −0.014	−0.025	−0.047, −0.002
Age (years-old)								
65–69	ref.	−	ref.	−	ref.	−	ref.	−
70–74	0.188	0.000, 0.376	−0.074	−0.148, −0.000	0.187	−0.000, 0.375	0.028	−0.000, 0.056
75–79	0.128	−0.089, 0.345	−0.030	−0.115, 0.055	0.132	−0.085, 0.349	0.020	−0.013, 0.052
80–84	0.212	−0.062, 0.485	−0.056	−0.168, 0.056	0.222	−0.052, 0.495	0.033	−0.008, 0.074
≥85	0.610	0.271, 0.948	−0.063	−0.226, 0.101	0.618	0.280, 0.956	0.092	0.041, 0.142
Income before disaster (tertile categories)								
Low	ref.	−	ref.	−	ref.	−	ref.	−
Middle	−0.181	−0.365, 0.003	−0.013	−0.088, 0.062	−0.175	−0.359, 0.009	−0.026	−0.053, 0.001
High	−0.184	−0.372, 0.004	0.036	−0.040, 0.112	−0.180	−0.368, 0.008	−0.027	−0.055, 0.001
Years of education								
≤9	ref.	−	ref.	−	ref.	−	ref.	−
10–12	−0.065	−0.245, 0.114	−0.090	−0.164, −0.016	−0.047	−0.229, 0.135	−0.007	−0.034, 0.020
≥13	−0.008	−0.222, 0.206	−0.080	−0.168, 0.008	0.012	−0.204, 0.228	0.002	−0.030, 0.034
Comorbid conditions before disaster								
No	ref.	−	ref.	−	ref.	−	ref.	−
Yes	−0.075	−0.235, 0.084	0.037	−0.027, 0.101	−0.078	−0.237, 0.081	−0.012	−0.035, 0.012
Loss of loved ones by the disaster								

No lost	ref.	−	ref.	−	ref.	−	ref.	−
Lost	−0.042	−0.202, 0.117	0.164	0.101, 0.227	−0.062	−0.224, 0.100	−0.009	−0.033, 0.015
Psychological distress after disaster								
None	ref.	−	ref.	−	ref.	−	ref.	−
Moderate	0.148	−0.011, 0.307	0.143	0.078, 0.208	0.135	−0.026, 0.295	0.020	−0.004, 0.044
Severe	0.256	−0.089, 0.602	0.231	0.079, 0.384	0.233	−0.115, 0.581	0.035	−0.017, 0.086

APE, average partial effect; CI, confidence interval; CML, conditional maximum likelihood; Coef. coefficient; IV, instrumental variable; Pr. probability; ref., reference

[a] F-statistic in first stage=1622.93

Web Table 10. Association between Subjective Economic Deterioration as Categorical Variable and Tooth Loss with Complete Case (n = 2,332), Iwanuma, Japan, 2010–2013

Variables	Multivariable probit regression (without IV)		APE	
	Coef.	95%CI	Pr.	95%CI
Subjective economic deterioration				
No change/improved	ref.	−	ref.	−
Became partially worse	0.156	−0.045, 0.357	0.024	−0.009, 0.057
Became worse	0.220	−0.074, 0.513	0.035	−0.018, 0.089
Sex				
Men	ref.	−	ref.	−
Women	−0.157	−0.309, −0.004	−0.023	−0.046, −0.001
Age (years-old)				
65–69	ref.	−	ref.	−
70–74	0.191	0.003, 0.379	0.027	0.000, 0.054
75–79	0.137	−0.081, 0.355	0.018	−0.012, 0.049
80–84	0.226	−0.048, 0.499	0.032	−0.011, 0.076
≥85	0.630	0.290, 0.969	0.118	0.036, 0.201
Income before disaster (tertile categories)				
Low	ref.	−	ref.	−
Middle	−0.162	−0.347, 0.024	−0.025	−0.053, 0.004
High	−0.159	−0.349, 0.032	−0.024	−0.053, 0.005
Years of education				
≤9	ref.	−	ref.	−
10–12	−0.065	−0.244, 0.115	−0.010	−0.036, 0.017
≥13	0.000	−0.214, 0.214	0.000	−0.033, 0.033
Comorbid conditions before disaster				
No	ref.	−	ref.	−
Yes	−0.078	−0.237, 0.082	−0.012	−0.036, 0.013
Loss of loved ones by the disaster				
No lost	ref.	−	ref.	−
Lost	−0.047	−0.206, 0.112	−0.007	−0.030, 0.016
Psychological distress after disaster				
None	ref.	−	ref.	−
Moderate	0.132	−0.029, 0.293	0.020	−0.005, 0.044
Severe	0.231	−0.117, 0.578	0.037	−0.026, 0.099

APE, average partial effect; CI, confidence interval; Coef. coefficient; Pr. probability; ref., reference

Web Table 11. Association between Housing damage as Categorical Variable and Tooth Loss with Complete Case (n = 2,332), Iwanuma, Japan, 2010–2013

Variables		Multivariable probit regression (without IV)		APE	
		Coef.	95%CI	Pr.	95%CI
Housing damage					
	No damage	ref.	−	ref.	−
	Partial	−0.015	−0.180, 0.149	−0.002	−0.026, 0.021
	Minor	0.086	−0.213, 0.385	0.013	−0.034, 0.061
	Major	0.054	−0.342, 0.451	0.008	−0.053, 0.069
	Destroyed	0.337	−0.029, 0.704	0.061	−0.017, 0.138
Sex					
	Men	ref.	−	ref.	−
	Women	−0.166	−0.319, −0.014	−0.025	−0.047, −0.002
Age (years-old)					
	65–69	ref.	−	ref.	−
	70–74	0.184	−0.004, 0.372	0.026	−0.001, 0.053
	75–79	0.129	−0.089, 0.346	0.017	−0.013, 0.048
	80–84	0.217	−0.056, 0.491	0.031	−0.012, 0.074
	≥85	0.615	0.277, 0.953	0.115	0.034, 0.197
Income before disaster (tertile categories)					
	Low	ref.	−	ref.	−
	Middle	−0.174	−0.359, 0.010	−0.027	−0.055, 0.001
	High	−0.179	−0.368, 0.010	−0.027	−0.056, 0.001
Years of education					
	≤9	ref.	−	ref.	−
	10–12	−0.059	−0.240, 0.121	−0.009	−0.035, 0.018
	≥13	0.001	−0.214, 0.217	0.000	−0.033, 0.033
Comorbid conditions before disaster					
	No	ref.	−	ref.	−
	Yes	−0.072	−0.231, 0.087	−0.011	−0.035, 0.013
Loss of loved ones by the disaster					
	No lost	ref.	−	ref.	−
	Lost	−0.050	−0.210, 0.110	−0.007	−0.031, 0.016
Psychological distress after disaster					
	None	ref.	−	ref.	−
	Moderate	0.148	−0.011, 0.308	0.022	−0.002, 0.047
	Severe	0.247	−0.101, 0.595	0.039	−0.024, 0.103

APE, average partial effect; CI, confidence interval; Coef. coefficient; Pr. probability; ref., reference

Web Table 12. Association between Subjective Economic Deterioration and Tooth Loss, Instrumental Variable Analyses with 2SLS using Complete Case (n = 2,332), Iwanuma, Japan, 2010–2013

Variables		2SLS first stage		2SLS second stage	
		Coef.	95%CI	Coef.	95%CI
Subjective economic deterioration: no change/improved (1) to Became worse (3)				0.559	(0.002, 1.115)
Distance from coastline (km^{-1}) [a]		0.307	0.249, 0.366		
Sex					
	Men	ref.	−	ref.	−
	Women	−0.075	−0.119, −0.032	−0.124	−0.283, 0.036
Age (years-old)					
	65–69	ref.	−	ref.	−
	70–74	−0.046	−0.099, 0.006	0.205	0.015, 0.396
	75–79	−0.084	−0.144, −0.023	0.176	−0.049, 0.401
	80–84	−0.115	−0.194, −0.035	0.282	−0.004, 0.568
	≥85	−0.174	−0.291, −0.058	0.713	0.354, 1.071
Income before disaster (tertile categories)					
	Low	ref.	−	ref.	−
	Middle	−0.17	−0.224, −0.117	−0.08	−0.293, 0.133
	High	−0.188	−0.242, −0.133	−0.069	−0.292, 0.154
Years of education					
	≤9	ref.	−	ref.	−
	10–12	−0.097	−0.149, −0.044	−0.004	−0.201, 0.194
	≥13	−0.137	−0.200, −0.075	0.081	−0.159, 0.322
Comorbid conditions before disaster					
	No	ref.	−	ref.	−
	Yes	0.022	−0.023, 0.068	−0.086	−0.247, 0.075
Loss of loved ones by the disaster					
	No lost	ref.	−	ref.	−
	Lost	0.126	0.081, 0.171	−0.089	−0.227, 0.049
Psychological distress after disaster					
	None	ref.	−	ref.	−
	Moderate	0.167	0.121, 0.213	0.055	−0.135, 0.245
	Severe	0.375	0.267, 0.484	0.053	−0.360, 0.467

2SLS, two-step least-square; CI, confidence interval ; Coef. coefficient

[a] F-statistic in first stage=144.33

Web Table 13. Association between Housing damage and Tooth Loss, Instrumental Variable Analyses with 2SLS using Complete Case (n = 2,332), Iwanuma, Japan, 2010–2013

Variables		2SLS first stage		2SLS second stage	
		Coef.	95%CI	Coef.	95%CI
Subjective economic deterioration: no change/improved (1) to Became worse (3)				0.110	(0.000, 0.220)
Distance from coastline (km^{-1}) [a]		1.533	1.450, 1.615		
Sex					
	Men	ref.	−	ref.	−
	Women	−0.001	−0.062, 0.060	−0.167	−0.319, −0.014
Age (years-old)					
	65–69	ref.	−	ref.	−
	70–74	−0.074	−0.149, −0.000	0.188	−0.000, 0.376
	75–79	−0.030	−0.115, 0.056	0.132	−0.085, 0.350
	80–84	−0.056	−0.169, 0.056	0.222	−0.052, 0.496
	≥85	−0.063	−0.227, 0.102	0.620	0.281, 0.959
Income before disaster (tertile categories)					
	Low	ref.	−	ref.	−
	Middle	−0.013	−0.088, 0.062	−0.176	−0.360, 0.009
	High	0.036	−0.041, 0.113	−0.180	−0.369, 0.008
Years of education					
	≤9	ref.	−	ref.	−
	10–12	−0.090	−0.164, −0.016	−0.047	−0.229, 0.136
	≥13	−0.080	−0.168, 0.008	0.012	−0.205, 0.229
Comorbid conditions before disaster					
	No	ref.	−	ref.	−
	Yes	0.037	−0.027, 0.102	−0.078	−0.238, 0.081
Loss of loved ones by the disaster					
	No lost	ref.	−	ref.	−
	Lost	0.164	0.101, 0.227	−0.062	−0.224, 0.101
Psychological distress after disaster					
	None	ref.	−	ref.	−
	Moderate	0.143	0.078, 0.208	0.135	−0.026, 0.295
	Severe	0.231	0.078, 0.384	0.234	−0.115, 0.583

2SLS, two-step least-square; CI, confidence interval ; Coef. coefficient

[a] F-statistic in first stage=1622.93