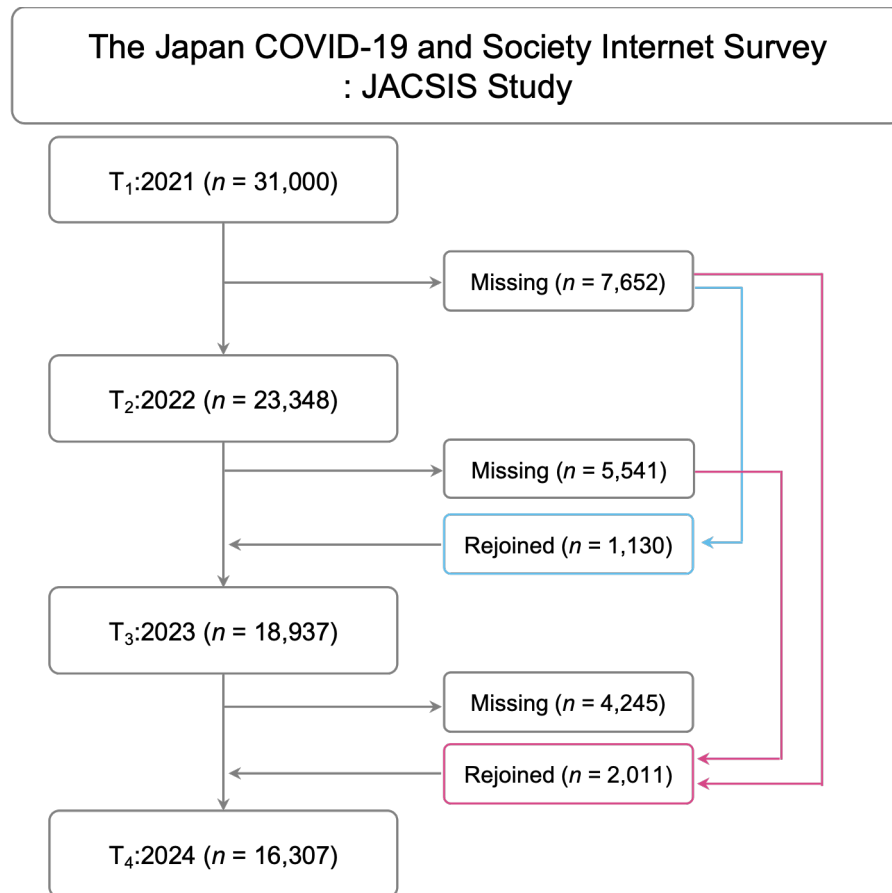


Supplement Figure 1. Flow Diagram of Analytic Sample in the JACSIS Cohort Across Four Waves (2021–2024)



Supplementary Table 1. CFA Measurement Invariance of the K6 Across Four Time Points (2020–2024)

Model	χ^2	df	p	CFI	RMSEA	90% CI	SRMR	Δ CFI	Δ RMSEA	Δ SRMR
Configural	2892.57	210	<.001	0.986	0.041	[0.04, 0.043]	0.027	—	—	—
Metric	2971.56	225	<.001	0.985	0.040	[0.039, 0.041]	0.029	0.000	-0.001	0.002
Scalar	3128.73	240	<.001	0.985	0.039	[0.038, 0.040]	0.029	0.000	-0.001	0.000

Note. CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual.

Supplementary Table 2. RI-CLPM fit indices

Model	χ^2	df	p	CFI	RMSEA	90% CI	SRMR	AIC	BIC
Model 1	662.260	13	< 0.001	0.985	0.078	[0.073, 0.083]	0.055	815003.450	815262.044
Model 2	629.054	17	< 0.001	0.984	0.070	[0.065, 0.075]	0.058	815084.138	815309.365
Model 3	694.368	21	< 0.001	0.984	0.064	[0.060, 0.068]	0.060	815119.695	815311.555
Model 4	710.870	23	< 0.001	0.984	0.061	[0.057, 0.065]	0.060	815116.634	815291.811

Note. CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual.

Model 1: unconstrained, Model 2: autoregressive paths constrained to equality across wave pairs,

Model 3: additionally constraining cross-lagged paths, and Model 4: additionally constraining residual variances and covariances.

Supplement Table 2. Parameter estimates from the covariate-adjusted random-intercept cross-lagged panel models (RI-CLPMs) of psychological distress (K6) and adverse childhood experiences (ACEs)

	Aged 16–29 (N = 4,752)					Aged 30 and above (N = 26,248)				
Path	<i>B</i>	SE	<i>Z</i>	<i>P</i>	β	<i>B</i>	SE	<i>Z</i>	<i>P</i>	β
Between-person effects										
K6 _{<i>i</i>} with ACE _{<i>i</i>}	2.992	0.185	16.181	<0.001	0.464	2.662	0.073	36.603	<0.001	0.414
Within-person effects										
Autoregressive paths										
K6 _{<i>T1</i>} → K6 _{<i>T2</i>}	0.153	0.035	4.421	<0.001	0.153	0.123	0.013	9.406	<0.001	0.133
K6 _{<i>T2</i>} → K6 _{<i>T3</i>}	0.153	0.035	4.421	<0.001	0.153	0.123	0.013	9.406	<0.001	0.123
K6 _{<i>T3</i>} → K6 _{<i>T4</i>}	0.153	0.035	4.421	<0.001	0.153	0.123	0.013	9.406	<0.001	0.123
ACE _{<i>ST1</i>} → ACE _{<i>ST2</i>}	0.010	0.039	0.249	0.804	0.011	0.033	0.016	2.052	0.040	0.032
ACE _{<i>ST2</i>} → ACE _{<i>ST3</i>}	0.010	0.039	0.249	0.804	0.010	0.033	0.016	2.052	0.040	0.033
ACE _{<i>ST3</i>} → ACE _{<i>ST4</i>}	0.010	0.039	0.249	0.804	0.010	0.033	0.016	2.052	0.040	0.033
Cross-lagged paths										
K6 _{<i>T1</i>} → ACE _{<i>ST2</i>}	-0.003	0.007	-0.375	0.708	-0.010	0.009	0.003	2.835	0.005	0.028
K6 _{<i>T2</i>} → ACE _{<i>ST3</i>}	-0.003	0.007	-0.375	0.708	-0.010	0.009	0.003	2.835	0.005	0.026
K6 _{<i>T3</i>} → ACE _{<i>ST4</i>}	-0.003	0.007	-0.375	0.708	-0.010	0.009	0.003	2.835	0.005	0.026
ACE _{<i>ST1</i>} → K6 _{<i>T2</i>}	-0.054	0.081	-0.667	0.505	-0.016	0.048	0.027	1.810	0.070	0.016
ACE _{<i>ST2</i>} → K6 _{<i>T3</i>}	-0.054	0.081	-0.667	0.505	-0.015	0.048	0.027	1.810	0.070	0.017
ACE _{<i>ST3</i>} → K6 _{<i>T4</i>}	-0.054	0.081	-0.667	0.505	-0.015	0.048	0.027	1.810	0.070	0.017
Residuals correlations										
K6 _{<i>T1</i>} with ACE _{<i>ST1</i>}	0.663	0.167	3.969	<0.001	0.136	0.314	0.038	8.243	<0.001	0.107
K6 _{<i>T2</i>} with ACE _{<i>ST2</i>}	0.366	0.094	3.877	<0.001	0.083	0.282	0.029	9.910	<0.001	0.102
K6 _{<i>T3</i>} with ACE _{<i>ST3</i>}	0.366	0.094	3.877	<0.001	0.083	0.282	0.029	9.910	<0.001	0.102
K6 _{<i>T4</i>} with ACE _{<i>ST4</i>}	0.366	0.094	3.877	<0.001	0.083	0.282	0.029	9.910	<0.001	0.102

Note. *B* represents the unstandardized regression coefficient. SE represents the standard error. *Z* represents the Wald *z* statistic. β represents the standardized regression coefficient. Subscript *i* represents the random intercept. All *P* values are two-tailed.