

Trajectories of satisfaction with life following a collective, critical life event and their relationship with sociodemographic factors and internal migration: The example of the German reunification 1989/90

Applied Research in Quality of Life

Supplementary Material 2: Details on model selection

SM2 Text 1. Model selection

For the short- and long-term perspective, a categorical and quadratic model for time was selected, respectively, because they generally provided the best fit over all types of constraints as well as different numbers of classes. Concerning statistical constraints, the most constrained model (model 1) was excluded due to an overextraction of classes with parallel trajectories. The least constrained models (model 3a and 3b) were not considered as well either due to low entropy and average posterior probabilities, indicating poor class separation. For short-term-trajectories, model 2b allowed for the extraction of more classes compared to model 2a, but LIPpp indicated that an extraction of more than four classes only led to a marginal improvement in model fit. Regarding long-term-trajectories, models 2a and model 2b performed similarly well – For both models, LIPpp indicated four classes to be optimal. Fit indices, class sizes, and model comparisons are found in SI2 Tables 1–5.

SM2 Table 1. Results of growth mixture modelling for short-term satisfaction with life – linear models ($N = 5,548$).

Model	NC	NPM	LL	AIC	BIC	SABIC	Class (%)							p (LMR)	LIPpp	Entr.	PP Min	PP Max
							1	2	3	4	5	6	7					
(1) Fixed intercepts, fixed slopes	1	3	-54,831.16	109,668.32	109,688.18	109,678.65	100.0									1.00	0.00	0.00
	2	6	-51,269.66	102,551.31	102,591.04	102,571.97	67.1	32.9						<0.001	1.08	0.81	0.91	0.96
	3	9	-50,365.11	100,748.21	100,807.80	100,779.21	40.5	10.7	48.8					<0.001	0.20	0.77	0.89	0.89
	4	12	-50,063.41	100,150.82	100,230.27	100,192.14	22.1	26.0	3.6	48.3				<0.001	0.05	0.73	0.81	0.90
	5	15	-49,915.02	99,860.05	99,959.36	99,911.70	5.9	27.8	15.0	1.5	49.9			<0.001	0.02	0.75	0.80	0.88
	6	18	-49,782.71	99,601.42	99,720.60	99,663.40	10.5	42.0	3.8	2.4	33.2	8.0		<0.001	0.01	0.73	0.72	0.87
	7	21	-49,675.65	99,393.30	99,532.35	99,465.62	3.5	1.1	5.0	5.8	29.5	42.6	12.6	<0.001	0.01	0.72	0.72	0.88
(2a) Random intercepts, fixed slopes	1	4	-50,065.29	100,138.59	100,165.07	100,152.36	100.0									1.00	0.00	0.00
	2	7	-49,863.82	99,741.65	99,788.00	99,765.75	4.1	95.9						<0.001	0.06	0.86	0.77	0.97
	3	10	-49,653.42	99,326.83	99,393.04	99,361.27	91.8	2.5	5.7					<0.001	0.04	0.84	0.77	0.95
	4	13	-49,653.42	99,332.83	99,418.91	99,377.60	2.6	5.9	91.5	0.0				1.000	0.00	0.66	0.76	0.85
(2b) Random intercepts, fixed slopes, different variances	1	4	-50,065.29	100,138.59	100,165.07	100,152.36	100.0									1.00	0.00	0.00
	2	8	-49,863.76	99,743.52	99,796.49	99,771.07	4.1	95.9						<0.001	0.05	0.86	0.77	0.97
	3	12	-49,640.28	99,304.56	99,384.01	99,345.88	91.1	6.1	2.8					<0.001	0.04	0.83	0.77	0.94
	4	16	-49,563.38	99,158.76	99,264.70	99,213.85	63.8	4.7	29.3	2.1				<0.001	0.01	0.57	0.72	0.78
	5	20	-49,546.13	99,132.27	99,264.69	99,201.14	3.6	67.5	3.9	1.5	23.5			<0.001	0.00	0.61	0.49	0.80
	6	24	-49,542.77	99,133.54	99,292.45	99,216.19	29.7	4.8	52.6	5.2	5.8	1.9		0.166	0.00	0.57	0.57	0.81
(3a) Random intercepts, random slopes	1	6	-49,985.32	99,982.64	100,022.37	100,003.31	100.0									1.00	0.00	0.00
	2	9	-49,985.32	99,988.64	100,048.24	100,019.64	37.4	62.6						1.000	0.00	0.00	0.51	0.51
(3b) Random intercepts, random slopes, different (co-)variances	1	6	-49,985.32	99,982.64	100,022.37	100,003.31	100.0									1.00	0.00	0.00
	2	10	-49,741.17	99,502.34	99,568.55	99,536.77	37.8	62.2						<0.001	0.05	0.33	0.75	0.83
	3	14	-49,675.82	99,379.64	99,472.33	99,427.84	13.9	43.7	42.5					<0.001	0.01	0.40	0.64	0.78
	4	18	-49,566.27	99,168.53	99,287.71	99,230.51	13.7	40.6	8.0	37.7				<0.001	0.01	0.57	0.70	0.80
	5						Model did not converge											

Note. NC = number of classes, NPM = number of parameters, LL = Log Likelihood, AIC = Akaike's Information Criterion, BIC = Bayesian Information Criterion, SABIC = sample size adjusted BIC, Entr. = entropy, LMR = Lo-Mendell-Rubin likelihood ratio test, LIPpp = likelihood increment percentage per parameter, PP = posterior class probability; printed in **bold**: highest LL, lowest AIC/ BIC/ SABIC, last significant p (LMR) and last LIPpp ≥ 0.02 .

SM2 Table 2. Results of growth mixture modelling for short-term satisfaction with life – quadratic models ($N = 5,548$).

Model	NC	NPM	LL	AIC	BIC	SABIC	Class (%)							p (LMR)	LIPpp	Entr.	PP Min	PP Max
							1	2	3	4	5	6	7					
(1) Fixed intercepts, fixed slopes	1	4	-54,826.83	109,661.67	109,688.15	109,675.44	100.0									1.00	0.00	0.00
	2	8	-51,232.61	102,481.22	102,534.19	102,508.77	67.6	32.4						<0.001	0.82	0.81	0.92	0.95
	3	12	-50,317.03	100,658.06	100,737.52	100,699.39	47.0	10.8	42.2					<0.001	0.15	0.77	0.87	0.91
	4	16	-50,007.98	100,047.96	100,153.90	100,103.05	3.4	31.3	44.1	21.2				<0.001	0.04	0.74	0.83	0.91
	5	20	-49,844.06	99,728.12	99,860.55	99,796.99	15.0	6.0	1.5	48.9	28.6			<0.001	0.02	0.75	0.80	0.90
	6	24	-49,701.32	99,450.64	99,609.55	99,533.28	13.9	1.3	7.0	14.7	48.3	14.8		<0.001	0.01	0.72	0.70	0.90
	7	28	-49,600.15	99,256.31	99,441.70	99,352.73	6.2	5.3	13.2	1.4	42.6	3.2	28.1	<0.001	0.01	0.72	0.71	0.88
(2a) Random intercepts, fixed slopes	1	5	-50,054.97	100,119.94	100,153.05	100,137.16	100.0									1.00	0.00	0.00
	2	9	-49,828.68	99,675.36	99,734.95	99,706.35	5.5	94.5						<0.001	0.05	0.81	0.77	0.96
	3	13	-49,583.73	99,193.47	99,279.54	99,238.23	2.9	88.7	8.4					<0.001	0.04	0.80	0.78	0.93
	4	17	-49,406.38	98,846.77	98,959.33	98,905.31	3.8	5.3	88.1	2.8				<0.001	0.02	0.83	0.76	0.93
	5	21	-49,406.38	98,854.76	98,993.81	98,927.08	6.9	0.0	4.8	85.2	3.1			1.000	0.00	0.50	0.55	0.77
(2b) Random intercepts, fixed slopes, different variances	1	5	-50,054.97	100,119.94	100,153.05	100,137.16	100.0									1.00	0.00	0.00
	2	10	-49,828.18	99,676.37	99,742.58	99,710.80	5.9	94.1						<0.001	0.05	0.79	0.76	0.96
	3	15	-49,560.79	99,151.59	99,250.91	99,203.24	9.5	87.2	3.3					<0.001	0.04	0.78	0.78	0.92
	4	20	-49,379.46	98,798.92	98,931.34	98,867.79	3.0	86.6	3.8	6.6				<0.001	0.02	0.81	0.74	0.92
	5	25	-49,313.39	98,676.78	98,842.31	98,762.87	2.9	69.1	4.1	20.9	3.0			<0.001	0.01	0.68	0.69	0.84
	6	30	-49,238.33	98,536.66	98,735.30	98,639.97	1.3	3.0	63.6	24.9	2.6	4.5		<0.001	0.01	0.65	0.68	0.79
(3a) Random intercepts, random slopes	1	10	-49,895.93	99,811.86	99,878.07	99,846.29	100.0									1.00	0.00	0.00
	2	14	-49,675.85	99,379.69	99,472.39	99,427.90	88.9	11.1						<0.001	0.03	0.75	0.81	0.94
	3	18	-49,675.85	99,387.69	99,506.88	99,449.68	13.2	86.8	0.0					1.000	0.00	0.35	0.64	0.75
(3b) Random intercepts, random slopes, different (co-)variances	1	10	-49,895.93	99,811.86	99,878.07	99,846.29	100.0									1.00	0.00	0.00
	2	15	-49,524.79	99,079.58	99,178.90	99,131.24	42.3	57.7						<0.001	0.05	0.40	0.78	0.86
	3	20	-49,380.76	98,801.51	98,933.94	98,870.38	42.6	13.6	43.7					<0.001	0.01	0.61	0.76	0.90
	4	25	-49,202.50	98,454.99	98,620.52	98,541.08	12.1	40.4	8.2	39.2				<0.001	0.01	0.60	0.74	0.84
	5						Model did not converge											

Note. NC = number of classes, NPM = number of parameters, LL = Log Likelihood, AIC = Akaike's Information Criterion, BIC = Bayesian Information Criterion, SABIC = sample size adjusted BIC, Entr. = entropy, LMR = Lo-Mendell-Rubin likelihood ratio test, LIPpp = likelihood increment percentage per parameter, PP = posterior class probability; printed in **bold**: highest LL, lowest AIC/ BIC/ SABIC, last significant p (LMR) and last LIPpp ≥ 0.02 .

SM2 Table 3. Results of growth mixture modelling for short-term satisfaction with life – categorical models ($N = 5,548$).

Model	NC	NPM	LL	AIC	BIC	SABIC	Class (%)							p (LMR)	LIPpp	Entr.	PP Min	PP Max
							1	2	3	4	5	6	7					
(1) Fixed intercepts, fixed slopes	1	6	-54,822.75	109,657.50	109,697.23	109,678.16	100.0									1.00	0.00	0.00
	2	12	-51,214.02	102,452.03	102,531.48	102,493.35	32.4	67.6						<0.001	0.82	0.81	0.92	0.96
	3	18	-50,285.87	100,607.73	100,726.91	100,669.71	42.1	10.7	47.3					<0.001	0.15	0.77	0.88	0.91
	4	24	-49,978.40	100,004.81	100,163.72	100,087.45	21.4	3.5	31.1	44.0				<0.001	0.04	0.74	0.83	0.90
	5	30	-49,793.88	99,647.76	99,846.39	99,751.06	15.0	28.0	1.4	5.4	50.3			<0.001	0.02	0.76	0.82	0.90
	6	36	-49,636.56	99,345.12	99,583.49	99,469.09	5.7	4.3	1.4	15.0	50.5	23.2		<0.001	0.01	0.76	0.73	0.89
	7	42	-49,518.53	99,121.05	99,399.14	99,265.68	42.4	29.5	13.4	4.1	6.0	1.4	3.1	<0.001	0.01	0.74	0.73	0.88
(2a) Random intercepts, fixed slopes	1	7	-50,046.07	100,106.14	100,152.49	100,130.25	100.0									1.00	0.00	0.00
	2	13	-49,778.39	99,582.79	99,668.86	99,627.55	5.6	94.4						<0.001	0.05	0.83	0.78	0.96
	3	19	-49,526.25	99,090.49	99,216.29	99,155.92	89.9	5.5	4.6					<0.001	0.04	0.82	0.76	0.94
	4	25	-49,244.89	98,539.78	98,705.31	98,625.87	86.7	5.2	5.6	2.5				<0.001	0.02	0.84	0.77	0.93
	5	31	-49,244.89	98,551.78	98,757.04	98,658.53	83.1	0.0	2.8	7.3	6.9			1.000	0.00	0.50	0.52	0.81
(2b) Random intercepts, fixed slopes, different variances	1	7	-50,046.07	100,106.14	100,152.49	100,130.25	100.0									1.00	0.00	0.00
	2	14	-49,777.31	99,582.63	99,675.33	99,630.84	5.8	94.2						<0.001	0.05	0.82	0.78	0.96
	3	21	-49,514.14	99,070.28	99,209.33	99,142.60	89.0	5.1	5.9					<0.001	0.04	0.81	0.77	0.94
	4	28	-49,214.13	98,484.26	98,669.66	98,580.68	5.4	85.8	6.0	2.8				<0.001	0.02	0.82	0.77	0.93
	5	35	-49,073.69	98,217.38	98,449.12	98,337.90	5.1	4.8	84.4	2.9	2.8			<0.001	0.01	0.83	0.73	0.92
	6	42	-49,007.86	98,099.72	98,377.81	98,244.35	2.4	14.7	71.5	3.0	5.3	3.1		<0.001	0.01	0.75	0.67	0.87
(3a) Random intercepts, random slopes	1	21	-49,811.60	99,665.19	99,804.24	99,737.51	100.0									1.00	0.00	0.00
	2						Model did not converge											
(3b) Random intercepts, random slopes, different (co-)variances	1	21	-49,811.60	99,665.19	99,804.24	99,737.51	100.0									1.00	0.00	0.00
	2	28	-48,090.54	96,237.07	96,422.47	96,333.49	56.5	43.5						<0.001	0.05	0.66	0.86	0.93
	3	35	-47,807.67	95,685.34	95,917.08	95,805.86	34.1	12.4	53.5					<0.001	0.01	0.56	0.79	0.82
	4	42	-47,672.82	95,429.65	95,707.74	95,574.28	12.6	22.6	10.4	54.5				<0.001	0.01	0.62	0.74	0.81
	5	49	-47,632.00	95,361.99	95,686.43	95,530.72	51.8	12.7	22.6	10.8	2.0			<0.001	0.00	0.65	0.65	0.81

Note. NC = number of classes, NPM = number of parameters, LL = Log Likelihood, AIC = Akaike's Information Criterion, BIC = Bayesian Information Criterion, SABIC = sample size adjusted BIC, Entr. = entropy, LMR = Lo-Mendell-Rubin likelihood ratio test, LIPpp = likelihood increment percentage per parameter, PP = posterior class probability; printed in **bold**: highest LL, lowest AIC/ BIC/ SABIC, last significant p (LMR) and last LIPpp ≥ 0.02 .

SM2 Table 4. Results of growth mixture modelling for long-term satisfaction with life – linear models ($N = 5,548$).

Model	NC	NPM	LL	AIC	BIC	SABIC	Class (%)							p (LMR)	LIPpp	Entr.	PP Min	PP Max
							1	2	3	4	5	6	7					
(1) Fixed intercepts, fixed slopes	1	3	-265,392.07	530,790.14	530,810.00	530,800.47	100.0									1.00	0.00	0.00
	2	6	-244,581.76	489,175.53	489,215.25	489,196.19	62.7	37.3						<0.001	0.55	0.93	0.97	0.98
	3	9	-238,486.36	476,990.73	477,050.32	477,021.72	40.7	41.5	17.7					<0.001	0.10	0.91	0.95	0.97
	4	12	-236,096.45	472,216.89	472,296.35	472,258.21	25.5	26.9	7.9	39.7				<0.001	0.03	0.89	0.92	0.96
	5	15	-234,520.74	469,071.49	469,170.81	469,123.14	33.5	26.1	7.7	20.0	12.7			<0.001	0.01	0.87	0.87	0.95
	6	18	-233,117.00	466,270.00	466,389.18	466,331.98	12.3	20.4	16.0	33.3	13.8	4.2		<0.001	0.01	0.87	0.86	0.95
	7	21	-232,327.40	464,696.81	464,835.85	464,769.12	20.4	9.0	13.8	11.1	31.7	10.0	4.1	<0.001	0.01	0.86	0.84	0.97
(2a) Random intercepts, fixed slopes	1	4	-233,976.51	467,961.01	467,987.50	467,974.79	100.0									1.00	0.00	0.00
	2	7	-230,540.31	461,094.62	461,140.97	461,118.72	27.9	72.1						<0.001	0.04	0.74	0.88	0.94
	3	10	-229,596.71	459,213.42	459,279.63	459,247.85	21.4	14.6	64.0					<0.001	0.03	0.69	0.83	0.87
	4	13	-229,185.00	458,396.01	458,482.08	458,440.77	10.5	4.9	22.4	62.2				<0.001	0.02	0.71	0.78	0.86
	5	16	-229,093.33	458,218.67	458,324.61	458,273.77	2.2	9.2	25.2	55.8	7.7			<0.001	0.00	0.67	0.69	0.84
	6	19	-229,029.14	458,096.27	458,222.07	458,161.70	54.8	1.9	1.8	18.9	16.1	6.4		<0.001	0.01	0.65	0.68	0.84
(2b) Random intercepts, fixed slopes, different variances	1	4	-233,976.51	467,961.01	467,987.50	467,974.79	100.0									1.00	0.00	0.00
	2	8	-230,514.70	461,045.41	461,098.38	461,072.95	72.0	28.0						<0.001	0.04	0.74	0.88	0.94
	3	12	-229,576.24	459,176.47	459,255.93	459,217.80	64.1	21.0	15.0					<0.001	0.03	0.69	0.83	0.88
	4	16	-229,137.61	458,307.22	458,413.16	458,362.32	11.4	5.0	59.6	24.0				<0.001	0.02	0.70	0.78	0.87
	5	20	-229,014.54	458,069.09	458,201.51	458,137.96	15.4	4.0	41.9	26.6	12.0			<0.001	0.01	0.60	0.67	0.85
	6	24	-228,906.32	457,860.65	458,019.56	457,943.29	34.8	11.4	2.8	3.5	25.1	22.4		<0.001	0.00	0.60	0.66	0.82
(3a) Random intercepts, random slopes	1	6	-229,435.08	458,882.16	458,921.89	458,902.82	100.0									1.00	0.00	0.00
	2	9	-229,435.08	458,888.16	458,947.75	458,919.15	46.6	53.4						1.000	0.00	0.00	0.50	0.50
(3b) Random intercepts, random slopes, different (co-)variances	1	6	-229,435.08	458,882.16	458,921.89	458,902.82	100.0									1.00	0.00	0.00
	2	10	-229,001.61	458,023.22	458,089.43	458,057.65	42.2	57.8						<0.001	0.12	0.38	0.77	0.85
	3	14	-228,865.87	457,759.74	457,852.44	457,807.95	5.2	36.8	58.0					<0.001	0.02	0.54	0.68	0.81
	4	18	-228,842.05	457,720.09	457,839.28	457,782.08	3.6	49.0	18.9	28.5				<0.001	0.01	0.48	0.67	0.81
	5	22	-228,831.32	457,706.65	457,852.31	457,782.41	34.3	15.7	3.5	43.7	2.9			<0.001	0.00	0.48	0.52	0.81

Note. NC = number of classes, NPM = number of parameters, LL = Log Likelihood, AIC = Akaike's Information Criterion, BIC = Bayesian Information Criterion, SABIC = sample size adjusted BIC, Entr. = entropy, LMR = Lo-Mendell-Rubin likelihood ratio test, LIPpp = likelihood increment percentage per parameter, PP = posterior class probability; printed in **bold**: highest LL, lowest AIC/ BIC/ SABIC, last significant p (LMR) and last LIPpp ≥ 0.02 .

SM2 Table 5. Results of growth mixture modelling for long-term satisfaction with life – quadratic models ($N = 5,548$).

Model	NC	NPM	LL	AIC	BIC	SABIC	Class (%)							p (LMR)	LIPpp	Entr.	PP Min	PP Max
							1	2	3	4	5	6	7					
(1) Fixed intercepts, fixed slopes	1	4	-265,041.76	530,091.51	530,118.00	530,105.29	100.0									1.00	0.00	0.00
	2	8	-244,086.81	488,189.63	488,242.59	488,217.17	62.9	37.1						<0.001	0.99	0.93	0.97	0.98
	3	12	-237,954.88	475,933.75	476,013.21	475,975.07	41.4	41.2	17.4					<0.001	0.21	0.91	0.95	0.97
	4	16	-235,542.43	471,116.85	471,222.79	471,171.95	39.6	25.4	27.4	7.6				<0.001	0.06	0.89	0.93	0.96
	5	20	-233,970.53	467,981.07	468,113.49	468,049.94	32.7	20.8	6.6	27.7	12.2			<0.001	0.03	0.88	0.86	0.96
	6	24	-232,572.58	465,193.16	465,352.07	465,275.80	20.3	13.5	15.8	12.5	4.2	33.7		<0.001	0.02	0.87	0.86	0.96
	7	28	-231,851.95	463,759.90	463,945.30	463,856.32	32.0	13.7	4.2	20.2	11.8	9.9	8.2	<0.001	0.01	0.86	0.85	0.96
(2a) Random intercepts, fixed slopes	1	5	-233,515.35	467,040.70	467,073.81	467,057.92	100.0									1.00	0.00	0.00
	2	9	-230,265.35	460,548.69	460,608.28	460,579.68	27.9	72.1						<0.001	0.15	0.74	0.88	0.94
	3	13	-229,281.06	458,588.12	458,674.20	458,632.89	20.1	13.6	66.4					<0.001	0.03	0.72	0.83	0.88
	4	17	-228,485.30	457,004.60	457,117.16	457,063.14	11.9	9.4	62.3	16.4				<0.001	0.02	0.73	0.81	0.86
	5	21	-228,058.82	456,159.64	456,298.69	456,231.96	12.1	9.8	3.8	60.6	13.7			<0.001	0.01	0.73	0.76	0.84
	6	25	-227,736.68	455,523.37	455,688.90	455,609.45	60.2	3.4	7.1	8.9	8.7	11.7		<0.001	0.01	0.73	0.74	0.83
(2b) Random intercepts, fixed slopes, different variances	1	5	-233,515.35	467,040.70	467,073.81	467,057.92	100.0									1.00	0.00	0.00
	2	10	-230,240.95	460,501.90	460,568.12	460,536.34	28.1	71.9						<0.001	0.14	0.74	0.88	0.94
	3	15	-229,261.71	458,553.43	458,652.75	458,605.08	19.2	14.0	66.9					<0.001	0.03	0.72	0.84	0.88
	4	20	-228,471.21	456,982.42	457,114.84	457,051.29	61.8	16.4	9.6	12.1				<0.001	0.02	0.72	0.81	0.85
	5	25	-228,022.13	456,094.26	456,259.79	456,180.34	14.9	3.9	58.2	10.2	12.7			<0.001	0.01	0.72	0.76	0.83
	6	30	-227,690.31	455,440.62	455,639.26	455,543.93	12.0	56.7	9.8	8.0	3.5	9.9		<0.001	0.00	0.71	0.72	0.82
(3a) Random intercepts, random slopes	1	10	-227,878.10	455,776.21	455,842.42	455,810.64	100.0									1.00	0.00	0.00
	2	14	-227,878.10	455,784.21	455,876.90	455,832.42	44.7	55.3						1.000	0.00	0.00	0.50	0.51
(3b) Random intercepts, random slopes, different (co-)variances	1	10	-227,878.10	455,776.21	455,842.42	455,810.64	100.0									1.00	0.00	0.00
	2	15	-227,252.07	454,534.13	454,633.45	454,585.79	50.1	49.9						<0.001	0.02	0.45	0.78	0.87
	3	20	-226,941.86	453,923.72	454,056.15	453,992.59	43.0	3.3	53.7					<0.001	0.01	0.61	0.74	0.85
	4	25	-226,863.49	453,776.98	453,942.51	453,863.06	27.7	28.3	3.0	41.1				<0.001	0.00	0.52	0.59	0.79
Model did not converge																		

Note. NC = number of classes, NPM = number of parameters, LL = Log Likelihood, AIC = Akaike's Information Criterion, BIC = Bayesian Information Criterion, SABIC = sample size adjusted BIC, Entr. = entropy, LMR = Lo-Mendell-Rubin likelihood ratio test, LIPpp = likelihood increment percentage per parameter, PP = posterior class probability; printed in **bold**: highest LL, lowest AIC/ BIC/ SABIC, last significant p (LMR) and last LIPpp ≥ 0.02 .