



Development of Externalizing and Internalizing Problems in Middle Childhood: Are Twins and Singletons Alike?

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Aims

- To compare developmental trajectories of externalizing and internalizing problems in 6- to 12-year-old twins and singletons.
- To examine if twins are a more vulnerable group than singletons
- To gain further insight into the generalizability of twin studies of problem behaviors.

Method

Child Behavior Checklist maternal reports of externalizing and internalizing problems were obtained for a sample of 9651 twins from the Netherlands Twin Registry and for a representative general population sample of 1351 singletons. Latent growth modeling was applied to estimate growth curves for twins and singletons, using Mplus. Twin-singleton differences were examined in the mean scores, and in the growth factors (i.e. intercepts and slopes) of the growth curves. Socio-economic status and sex were included as covariates.

Conclusions

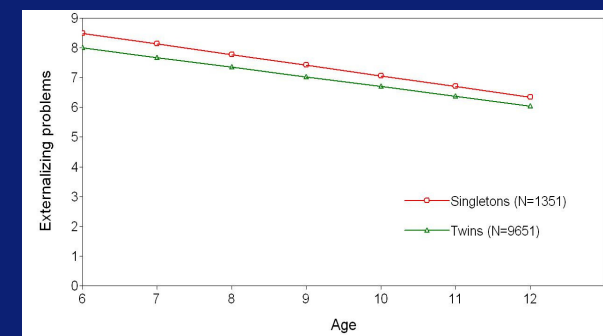
- The development of externalizing problems in 6- to 12-year-old children is *similar* for twins versus singletons.
- The development of internalizing problems in 6- to 12-year-old children is *different* for twins versus singletons
- Twins should not be considered a more vulnerable group than singletons with regard to the development of externalizing and internalizing problems.

Results

The trajectories of externalizing problems showed a linear decrease over time, and the intercepts and slopes were not significantly different for twins versus singletons. For internalizing problems, the results suggest a different developmental pathway for twins versus singletons, as the growth curves of the two groups had different slopes. Twins' internalizing problems decreased from the age of 9 onwards, whereas in singletons internalizing problems stabilized, resulting in less internalizing problems in twins than in singletons by the age of 12.

Externalizing problems

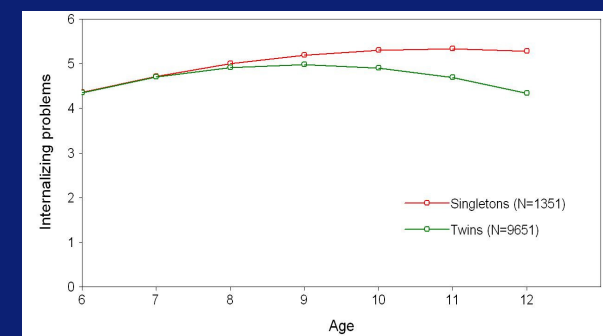
age	Singletons			Twins		
	N	Mean	Std	N	Mean	Std
6	224	8.29	7.39	605	7.81	6.76
7	257	8.03	6.95	7353	7.59	6.73
8	356	7.71	6.74	702	7.76	6.85
9	384	7.15	6.95	2583	6.91	6.86
10	469	6.87	6.40	3072	6.81	6.68
11	505	6.56*	6.60	1689	5.83*	6.22
12	602	6.31	6.36	1992	6.06	6.50



Note: N = number of observations; Std = standard deviation; * = significant twin-singleton difference ($p < 0.05$).

Internalizing problems

age	Singletons			Twins		
	N	Mean	Std	N	Mean	Std
6	224	4.04	3.68	594	4.45	4.21
7	257	4.49	4.46	7240	4.68	4.64
8	356	4.94	4.66	687	4.61	4.45
9	384	5.00	4.75	2546	4.99	5.06
10	469	5.33	5.34	3032	4.87	5.08
11	505	5.10*	5.14	1668	4.46*	5.07
12	602	5.17*	5.30	1974	4.25*	4.77



Note: N = number of observations; Std = standard deviation; * = significant twin-singleton difference ($p < 0.05$).