

Seattle Personality Inventory
Kindergarten-Grade 1 / Years 1-2
Fast Track Project Technical Report
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This technical report was written for both years one and two, but the analyses are separated by year. Since this original report was written by one of the project Principal Investigators, we chose to use this technical report instead of rewriting the reports.

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I. Source

The original SPI contained items designed to measure 3 dimensions of symptomatology (anxiety, conduct problems, somatization), school dislike and a lie scale. The symptomatology and lie items were borrowed from existing measures or written by M. Greenberg. The school dislike items were borrowed from two scales: School Loneliness (Asher, Hymel & Renshaw, 1984; Asher & Wheeler, 1985) and School Sentiment (Ladd, 1990).

II. Scale Derivation

Symptomatology Scales, Time 1. Using the Time One, Cohort One sample, the 20 symptomatology items were submitted to a confirmatory factor analysis (CFA) *, with items loading on the three factors identified a priori. The model provided a moderate fit to the data (CFI=.87, NNFI=.85) using the Normative Sample. One item from the anxiety factor was removed as a result of a large cross-loading with the somatization factor, improving the model fit (CFI=.89, NNFI=.88). The model was retested using data from the High-risk sample (intervention and control) and demonstrated a good fit to the data (CFI=.94, NNFI=.93). An attempt was made to estimate a 4 factor model, with the 4th factor being composed of the Lie Scale items. Including the Lie factor markedly diminished the fit of the model to the data. The items demonstrated low inter-item correlations, and therefore, the Lie Scale should be regarded with caution. The items, loadings on their respective factors, and scale internal consistency reliabilities are as follows:

Scale	Item		Norm Sample Loading	Alpha	Hi-Risk Sample Loading	Alpha
Anxiety clcanx	Feel afraid a lot ¹	clcsp2	—	.66	—	.73
	Worry what other children say	clcsp3	.51		.57	
	Afraid to try new things	clcsp4	.32		.49	
	Worry others may not like you	clcsp8	.61		.62	
	Hard to ask to join games	clcsp12	.36		.28	
	Worry what others think of you	clcsp29	.64		.73	
	Worry about being teased	clcsp32	.56		.68	
Conduct Problems clcond	Talk a lot in class	clcsp1	.37	.62	.45	.62
	Take things and keep them	clcsp11	.22		.35	
	Lot of fights	clcsp19	.53		.50	
	Hard for you to listen	clcsp23	.50		.40	
	Tell a lot of lies	clcsp25	.45		.42	
	Argue a lot	clcsp27	.42		.42	
	Tease or make fun of other kids	clcsp30	.43		.41	
	Break things on purpose	clcsp33	.37		.40	
Somatization clcsom	Lot of aches and pains	clcsp6	.56	.70	.55	.69
	Lot of scary dreams or nightmares	clcsp13	.45		.51	
	Lot of headaches	clcsp14	.65		.60	
	Lot of tummy aches	clcsp18	.69		.71	
	Feel like throwing up	clcsp26	.51		.44	

1. Item removed from the scale as a result of large cross-loading with somatization factor.

Time 1 internal consistency reliabilities (Cronbach's alpha for Normative/High-risk samples) for each site.

Scale:	Site			
	Durh	Nash	Penn	Wash
Anxiety	.65/.69	.63/.66	.68/.83	.64/.68
Conduct Problems	.66/.65	.59/.66	.54/.66	.61/.43
Somatization	.79/.71	.61/.67	.70/.76	.63/.60

Symptomatology Scales, Time 2. In Time Two, Cohort One, 11 items were added to the SPI in order to assess children's depression. The 31 symptomatology items were submitted to a CFA with four factors specified using the Normative Sample. The model demonstrated a moderate fit to the data (CFI=.84, NNFI=.83). Two items were eliminated (one was the same eliminated in the time 1 measurement model) as a result of large cross-loading, resulting in an improved fit of the model (CFI=.90, NNFI=.89). The model was replicated using the High-risk Sample, and demonstrated a good fit to the data (CFI=.92, NNFI=.91). The items, loadings on their respective factors and scale internal consistency reliabilities are as follows:

Scale	Item		Norm Sample Loading	Alpha	Hi-Risk Sample Loading	Alpha
Anxiety c2canx	Feel afraid a lot ¹	c2csp2	—	.64	—	.69
	Worry what other children say	c2csp3	.52		.56	
	Afraid to try new things	c2csp4	.28		.37	
	Worry others may not like you	c2csp8	.59		.67	
	Hard to ask to join games	c2csp12	.40		.37	
	Worry what others think of you	c2csp29	.66		.65	
	Worry about being teased	c2csp32	.48		.56	
Conduct Problems c2ccond	Talk a lot in class	c2csp1	.46	.64	.41	.71
	Take things and keep them	c2csp11	.36		.34	
	Lot of fights	c2csp19	.56		.53	
	Hard for you to listen	c2csp23	.59		.59	
	Tell a lot of lies	c2csp25	.50		.58	
	Argue a lot	c2csp27	.40		.57	
	Tease or make fun of other kids	c2csp30	.27		.38	
Break things on purpose	c2csp33	.33		.47		
Somatization c2csom	Lot of aches and pains	c2csp6	.66	.72	.59	.72
	Lot of scary dreams or nightmares	c2csp13	.46		.49	
	Lot of headaches	c2csp14	.56		.59	
	Lot of tummy aches	c2csp18	.59		.66	
	Feel like throwing up	c2csp26	.68		.61	
Depression c2cdep	Feel unhappy a lot	c2csp34	.52	.72	.55	.71
	Feel like crying a lot	c2csp35	.58		.54	
	Feel upset about things	c2csp36	.47		.55	
	Have trouble paying attention 2	c2csp37	—		...	
	Feel you do most things wrong	c2csp38	.42		.57	
	Feel that most things are not fun	c2csp39	.41		.39	
	Feel sorry for yourself	c2csp40	.45		.35	
	Have trouble falling/staying asleep	c2csp41	.43		.43	
	Feel tired a lot	c2csp42	.44		.49	
	Often feel like not eating	c2csp43	.38		.28	
	Want to be by yourself a lot	c2csp44	.37		.31	

1. Item removed from the scale as a result of large cross-loading with somatization factor.

2. Item removed from the scale as a result of large : cross-loadings with conduct problems and somatization factors.

Time 2 internal consistency reliabilities (Cronbach's alpha for Normative/High-risk samples"* for each site:

Scale:	Site			
	Durh	Nash	Penn	Wash
Anxiety	.59/.62	.67/.65	.69/.71	.66/.74
Conduct Problems	.63/.67	.70/.74	.64/.71	.60/.72
Somatization	.75/.71	.74/.76	.59/.69	.66/.68
Depression	.75/.68	.68/.71	.68/.76	.74/.69

School Dislike Scale. In addition, the SPI contains items intended to measure children's school dislike. One and two factor solutions were attempted using CFA. In the two factor solution, school loneliness and school sentiment factors were identified. In each case the models demonstrated a good fit to the data using the Normative Sample, but a poor fit to the data using the High-risk Sample. The internal consistency reliabilities for the subscales were low, but the alpha was somewhat better for the overall school dislike scale. The total school dislike scale (clcsclik) is recommended. The utility of this scale is questionable.

Scale	Item		Norm Sample Loading	Alpha	Hi-Risk Sample Loading	Alpha
School	Hard to make friends at school	clcsp5	.27	.47/.54 ²	.33	.50/.57 ²
Loneliness	Have kids to play with at school	clcsp10	.49		.47	
clcsclon	Kids at school like you	clcsp15	.66		.51	
	Lonely at school	clcsp20	.36		.43	
	Unhappy at school	clcsp28	.26		.33	
School	Think school is fun	clcsp7	.51	.36	.55	.39
Sentiment	Like your teacher	clcsp17	.48		.62	
clcscsen	Teacher gets mad too much ¹	clcsp22	
	Nice things happen at school	clcsp24	.23		.30	
	Wish you could stay home from school	clcsp31	.37		.24	
Fit Indices			CFI = .96	CFI = .78		
			NNF= .96	NNF=. 70		

1. Item removed from the scale as a result of low factor loading in the intervention sample.

2. Internal consistency reliabilities for total school dislike scale (clcsclik).

Scale Summary Scores

Mean scores were calculated for each subscale by 1) summing the non-missing responses; 2) dividing by the number of non-missing responses; and 3) multiplying by the total number of items on the scale.

III. Missing Data

Scale scores were considered missing if 20% or more of the items on a scale were missing. In the Year 1 Normative sample data were missing for: Anxiety, Conduct Problems and Lie Scale - 2, Somatization -1. In the Year 1 High Risk sample data were missing for: Conduct Problems -1. In the Year 2 Normative sample data were missing for: Anxiety - 26, Conduct Problems, Somatization, Depression, Lie Scale, School Dislike - 25. In the Year 2 High Risk sample data were missing for: Anxiety, Conduct Problems, Somatization, Lie Scale, School Dislike -11, Depression -12.

IV. Descriptives

Descriptive statistics of the scales are presented here. None of the scale distributions deviated markedly from a normal distribution.

Subscale	Time 1				Time 2			
	Mean	S. D.	Skew	Kurtosis	Mean	S. D.	Skew	Kurtosis
Normative Sample								
Anxiety	2.52	1.79	0.21	-1.05	2.13	1.71	0.48	-0.67
Conduct Problems	1.61	1.62	1.04	0.82	1.30	1.54	1.39	1.53
Somatization	2.13	1.66	0.30	-1.12	2.05	1.67	0.37	-1.08
Depression	—	—	—	~	3.99	2.56	0.24	-0.77
School Dislike	2.23	1.65	0.83	0.29	1.84	1.52	0.72	-0.14
Lie	2.09	0.84	-0.56	-0.46	1.93	0.94	-0.49	-0.68
High-Risk Sample								
Anxiety	2.28	1.89	0.43	-0.93	2.23	1.80	0.47	0.82
Conduct Problems	1.96	1.75	0.93	0.40	1.75	1.84	1.02	0.27
Somatization	2.15	1.66	0.28	-1.17	2.06	1.67	0.42	-1.04
Depression	—	—	~	~	4.39	2.58	0.13	-0.76
School Dislike	2.57	1.78	0.62	-0.16	2.12	1.71	0.60	-0.44
Lie	2.05	0.86	-0.53	-0.50	1.84	0.89	-0.36	-0.59

Intercorrelations

The cross-sectional and longitudinal intercorrelations among the SPI subscales are as follows (see Appendix C for the intercorrelations among the scales within the Normative and High-risk samples for each site):

Time 1	1	2	3	4	5
Anxiety ~					
Conduct Problems	.28*	—			
Somatization	.36*	.34*	~		
School Dislike	.30*	.41*	.32*	—	
Lie	-.12*	-.30*	-.16*	-.25*	—

*p<.01.

Time 2	1	2	3	4	5	6
Anxiety ~						
Conduct Problems	.21*	~				
Somatization	.20*	.28*	~			
Depression	.39*	.46*	.48*	-		
School Dislike	.23*	.44*	.31*	.47*	—	
Lie	-.20*	-.33*	-.07	-.22*	-.18*	—

*p<.01.

	Anxiety	Conduct Problems	Somatization	School Dislike	Lie
Time 1; Anxiety	.23*	.08	.14*	.08	-.01
Conduct Problems	.02	.31*	.09	.21*	-.09
Somatization	.09	.15*	.29*	.17*	.001
School Dislike	.12*	.19*	.16*	.28*	.03
Lie.	-.10*	-.16*	-.01	-.13*	.27*

*p<.01.

V. Site and Site x Intervention Differences

Mean Differences Among Fast Track Sites on the SPI Dimensions

Dimension	Site Means				F-value	Prob
	DURH	NASH	PENN	WASH		
Normative Sample - Year 1						
Anxiety	2.47	2.80	2.70	2.03	3.40	.02
Conduct	1.74	1.98	1.36	1.36	3.46	.02
Somatization	2.37	2.54	1.67	1.92	5.93	.001
School Dislike	2.48	2.58	2.02	1.83	4.58	.004
Loneliness	1.31	1.44	1.00	1.05	3.34	.02
Sentiment	1.17	1.11	1.01	0.78	3.43	.02
High-Risk Sample - Year 1						
Anxiety	2.09	2.29	2.66	2.06	1.70	.17
Conduct	2.17	2.14	1.71	1.83	1.30	.27
Somatization	2.18	2.51	1.96	1.93	2.04	.11
School Dislike	2.90	2.79	2.32	2.25	2.61	.05
Loneliness	1.59	1.64	1.18	1.15	3.42	.02
Sentiment	1.31	1.15	1.16	1.10	0.68	.57
Normative Sample - Year 2						
Anxiety	2.02	2.13	2.26	2.12	0.30	.83
Conduct	1.42	1.33	1.22	1.23	0.32	.81
Somatization	2.19	2.58	1.37	2.09	9.25	<.001
School Dislike	1.82	2.26	1.52	1.77	3.75	.01
Loneliness	1.02	1.30	0.69	0.89	4.96	.002
Sentiment	0.83	0.99	0.85	0.86	0.58	.63
High-Risk Sample - Year 2						
Anxiety	1.99	1.99	2.73	2.18	3.07	.03
Conduct	1.81	1.84	1.81	1.52	0.44	.73
Somatization	2.11	2.40	1.98	1.68	2.35	.07
School Dislike	2.22	2.19	2.13	1.92	0.42	.74
Loneliness	1.08	1.26	0.91	0.97	1.53	.21
Sentiment	1.14	0.98	1.24	0.95	1.21	.31

Normative Sample. In Year 1, for Anxiety the mean for Wash was significantly less than the means for Nash and Penn. Mean Conduct Problems for Wash was significantly less than the means for Nash and Durh; and the mean for Penn was significantly less than the mean for Nash. The means for Somatization and School Dislike for Wash and Penn were significantly less than the means for Nash and Durh.

High Risk. In Year 1, there were no significant site, intervention or site x intervention effects for Anxiety or School Dislike. There was a significant site x intervention effect for Somatization such that the intervention group mean was significantly less than the control group mean for Durh, whereas it was significantly greater than the control group mean for Penn. The groups did not differ for Nash or Wash. There was a significant site x intervention effect for Conduct Problems such that the intervention group mean was significantly less than the control group mean for Durh, but the groups did not differ at the other sites.

Differences between High-Risk and Normative Samples on SPI Dimensions in Year 1

	High-Risk	Normative	F-test	p value
Anxiety	2.28	2.58	3.98	0.05
Conduct Problems	1.96	1.53	10.88	0.001
Somatization	2.15	2.10	0.16	ns
School Dislike	2.59	2.17	9.25	0.003

Differences between High-Risk and Normative Samples on SPI Dimensions in Year 2

	High-Risk	Normative	F-test	p value
Anxiety	2.23	2.16	0.26	ns
Conduct Problems	1.74	1.21	14.79	0.0001
Somatization	2.06	1.99	0.28	ns
Depression	4.36	3.88	5.09	0.02
School Dislike	2.19	1.77	9.05	0.003

1. It is recognized that the categorical response format of these items is not optimal for use in latent variable analyses. Maximum Likelihood estimation using categorical data has been demonstrated to introduce bias into estimates of factor loadings, which tend to be downwardly biased, and chi-square goodness of fit tests, which tend to be inflated (i.e., indicating poor fit; Ethington, 1987; Leung, 1992; Muthen, 1983). The goal of the current analyses was to replicate the factor structure of the SPI found in previous analyses, and to ensure the factors were reasonably homogeneous, reliable and orthogonal. In light of potential bias introduced by the use of categorical data, caution was taken in using the resulting estimates to revise the models.

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