

Disentangling Genetic and Environmental Influences on the Development of Childhood Anxiety Symptoms

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INTRODUCTION

American children are living with an anxiety disorder (Masi, et al., 2012), making anxiety among the most common psychological disorders.

Despite a plethora of studies conducted on this topic, results are mixed about the exact epidemiology and risk factors for the development of anxiety disorders.

AIM

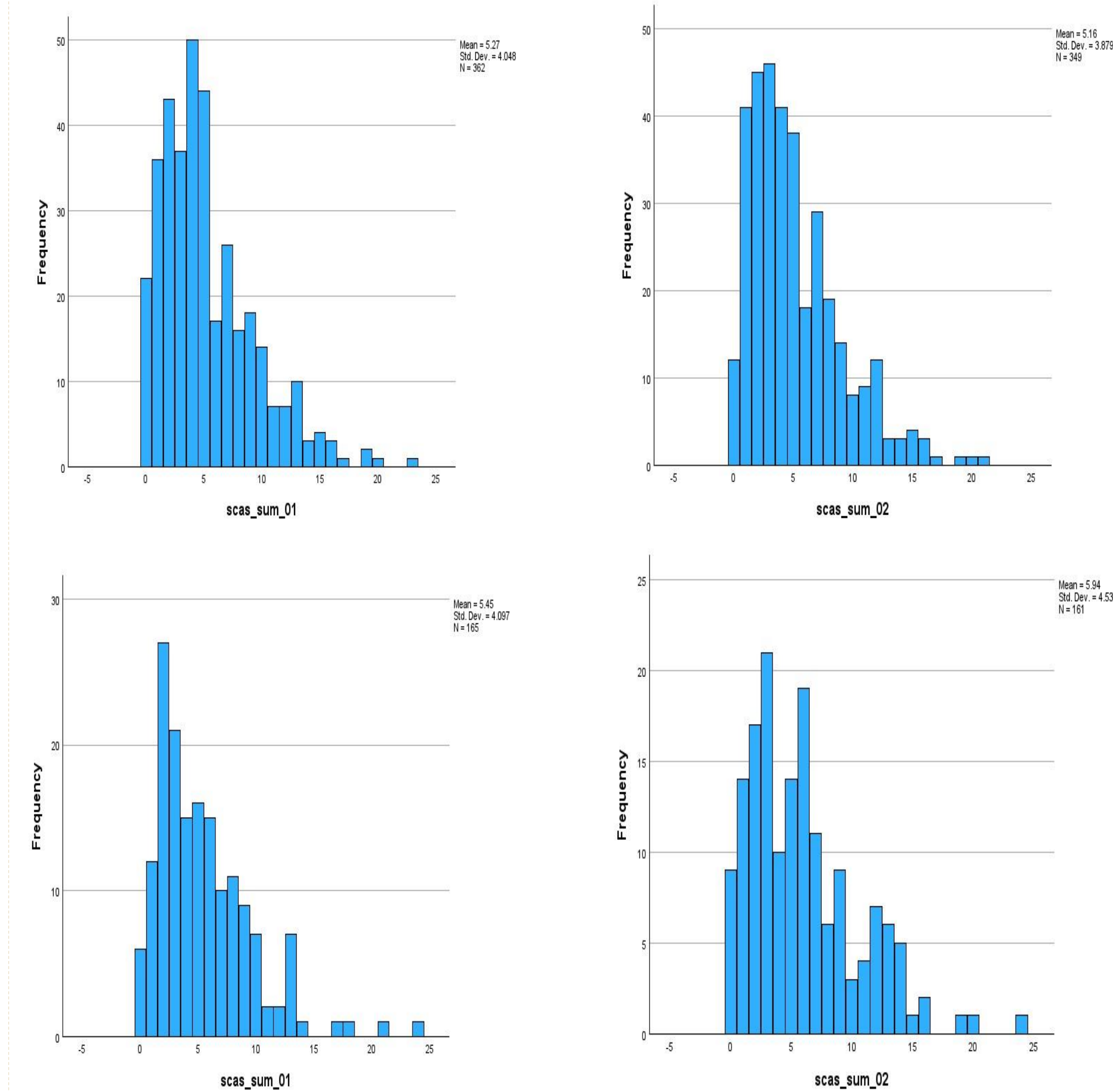
The goal of the present study is to build off previous twin research, which outlines that monozygotic twin pairs have higher concordance rates on anxiety symptoms compared to dizygotic twin pairs, as well as previous research associating parental distress and childhood anxiety.

This study will examine childhood anxiety and parental distress through the lens of univariate Cholesky decomposition models to further explain the impacts of genes and environment on child anxiety symptoms, as well as map out the interaction effects of parental distress, child sex, and age.

BACKGROUND

Paired Samples Test										
		Paired Differences					Significance			
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	One-Sided p	Two-Sided p
Pair 1	scas_sum_01 - scas_sum_02	.080	4.422	.237	-.385	.546	.339	348	.367	.735

Paired Samples Test										
		Paired Differences					Significance			
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	One-Sided p	Two-Sided p
Pair 1	scas_sum_01 - scas_sum_02	-.578	4.007	.316	-1.201	.046	-1.829	180	.035	.069



ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Kessler_sum_0	Between Groups	6143.721	23	267.118	7.121	<.001
	Within Groups	37996.854	1013	37.509		
	Total	44140.575	1036			
zygosity_0	Between Groups	7.649	23	.333	1.561	.045
	Within Groups	215.867	1013	.213		
	Total	223.516	1036			
twosex_0	Between Groups	12.104	23	.526	2.166	.001
	Within Groups	246.128	1013	.243		
	Total	258.231	1036			
Ethnicity_0	Between Groups	737.138	23	32.049	.844	.676
	Within Groups	38466.567	1013	37.973		
	Total	39203.705	1036			

PREVIOUS RESEARCH

Child anxiety measured using Spence Child Anxiety Scale was positively and significantly correlated with Kessler Psychological Distress Scale measuring parental distress with a correlation of .309 ($p < .001$).

Female sex was associated with higher levels of reported child anxiety with a correlation of $-.172$ ($p < .001$).

ANOVA models representing the effects of parental distress and sex on child anxiety produced a F-statistic of 7.121 ($p < .001$) and 2.166 ($p < .001$), respectively.

Monozygotic twin pairs and Dizygotic twin pairs correlated on measures of anxiety within pairs with a value of .574 ($p < .001$) and .372 ($p < .001$), respectively. The differences between correlations within monozygotic and dizygotic twin pairs is .202.

MEASURES

Child anxiety was collected via the Spence Child Anxiety Scale, a self report survey on a likert-scale that measures multiple facets of childhood anxiety. (Spence 2021).

Parental distress was observed using the Kessler Psychological Distress Scale, which measures the extent of parental distress via a likert-scale questioning “anxiety and depressive symptoms” over the “most recent 4 week period” (Kessler, 2001).

METHODS

Childhood anxiety symptoms reported via the Spence Child Anxiety Scale will be broken down into univariate Cholesky decomposition models that aid in compartmentalizing the additive genetic, shared environment, and unique environment contributions to the development of child anxiety.

Additional models will be made to further examine contributors to this association, these models will be adjusted for levels of self-reported parental distress, measured with the Kessler Psychological Distress Scale, as well as child sex, and child age. These various models will be evaluated using maximum likelihood estimation to determine the model of best fit.