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Cognitive and Academic Effects of Aversive Stress on Latinx and European American Elementary Students

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Cognitive and Academic Effects of Aversive Stress on Latinx and
European American Elementary Students

by

Annelise M. Manns

Presented to the Faculty of the
Graduate School of Clinical Psychology
George Fox University
in partial fulfillment
of the requirements for the degree of
Doctor of Psychology
in Clinical Psychology

Newberg, Oregon

March, 2018

Cognitive and Academic Effects of Aversive Stress on Latinx and European American

Elementary Students

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Annelise M. Manns

Has the **Approval**

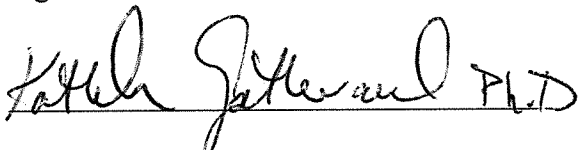
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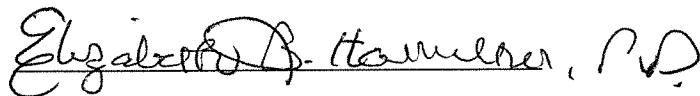
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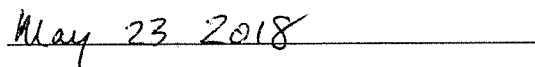
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Cognitive and Academic Effects of Aversive Stress on Latinx and
European American Elementary Students

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Abstract

This study sought to examine the relationship between perceived stress, social-emotional functioning, cognitive functioning, and statewide academic testing in both European American and Latinx students in third grade classes in two schools in rural Oregon. A total of 47 third grade students participated in the study, including 31 European American students and 13 Latinx students. A non-verbal measure of cognitive ability (The Wechsler Nonverbal Scale of intelligence) was administered individually to each of the 47 students. Additionally, a rating scale of social emotional intelligence (Social Emotional Assets and Resilience Scales Short Form for child and Teacher) was self-reported (SEARS-C) and teacher-rated (SEARS-T). A perceived stress student rating (Perceived Stress Scale) was self-reported by the students. State wide testing results (OAKS) were obtained for participants. Mean scores on the tests did not differ for Euro-American and Latinx students. Correlation matrices among the measures were calculated for the Euro-American and Latinx samples. A binomial test of difference between two correlations revealed the relationships among cognition, social emotional intelligence, stress, and achievement differed in the two samples. Findings suggest that although European American and Latinx students received commensurate scores across domains, there are notable differences in the way perceived stress and non-verbal ability impact each group. Low stress for Latinx

students' is correlated with high academic achievement whereas for European American students' high stress is correlated with high academic achievement. This indicates that ethnicity may be a modifier variable for how perceived stress impacts academic functioning.

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Chapter 1

Introduction

Stress is a widely experienced phenomenon with 20% of Americans reporting extreme levels of stress and only 37% feeling like they are doing an adequate job managing their stress (American Psychological Association, 2012). Adults are not the only ones feeling strained, research demonstrates that children are experiencing high levels of stress as well. Stress in America research, conducted by the American Psychological Association in 2009, found that one-fifth of children ages 8-17 reported worrying a great deal. Additionally, over a third of the children reported having headaches or trouble sleeping (Munsey, 2010). A great deal of research suggests that chronic stress disrupts and immobilizes specific areas of the brain making learning, attention and emotional regulation much more difficult (Liston, McEwen, & Casey, 2009; Wood, Norris, Waters, Stoldt, & McEwen, 2008).

Children Functioning Under Chronic Stress

Stress is a term that is widely used and generally is understood as experiences that lead to feelings of anxiety and tension that push us past our threshold of what we are able to cope with successfully (McEwan, 2006). While this includes traumatic or adverse childhood experiences, it also includes daily stressors that individuals perceive as moderately unpleasant. Chronic stress related to daily stressors negatively impacts children's overall health and psychological development (Maldonado et al., 2008). Furthermore, when an individual experiences chronic stress, his or her response is likely to become anxious, depressed, demonstrate trouble sleeping

or eating, result in changed social patterns, and reduce the amount of physical activity in which he or she engages. When common stressors become chronic, the brain, as a biological organ, begins to change. As the brain controls many bodily systems, both long term and short-term consequences may occur as a result of stress (McEwan, 2006; Wood et al., 2008). The body responds to stress by releasing chemical mediators called, catecholamine's that raise heart rate and blood pressure and help individual's to cope. This process of the body's response to stressors to maintain homeostasis is called allostasis. Chronic allostasis can lead to disease, as cortisol levels and sympathetic nervous system activities are elevated for prolonged periods of time (Fink, 2016).

When a child is subjected to chronic stress or a frightening or threatening situation, his or her cardiovascular system, metabolic system, immune system, and central nervous system are activated through the responses of the amygdala, hippocampus, and prefrontal-cortex (Lupien, McEwan, Gunnar, & Heim, 2009; McEwan, 2006). These systems are a part of the fight or flight response and are integral to a child's response to threat and stress. When these systems' responses are chronically activated, without specific caregiver support to mediate stress, the child is experiencing toxic stress, and thus is in a state of allostatic load which can lead to negative structural and functional changes in the amygdala, hippocampus, and prefrontal cortex (Shonkoff, Boyce, & McEwen, 2009). Research shows that when a child experiences a heavy allostatic load during early brain development, both short term and long term changes to the brain may result. These long term structural and functional changes to the brain become "biologically embedded" in the child experiencing toxic stress (Danese & McEwen, 2012; Shonkoff et al., 2009).

Specific Stressors that Impact Functioning in Children

A stressor can therefore be defined as a physical or psychological event that disrupts ongoing homeostatic functioning (de Kloet, Joe'ls, & Holsboer, 2005). Researchers have identified many experiences that fit the definition of stressors for developing child. Several of the most salient stressors in a child's life are academic, psychosocial, familial, and adverse childhood experiences (Munsey, 2010).

Academic stress is the most widely reported cause of stress in children ages 8-12 with 44% of them reporting that managing school pressures, homework, grades and doing well in school is a source of significant stress (Munsey, 2010). Research has shown that too much academic stress can lead to anxiety, which impairs attention and can lead to physiological hyperarousal (Duncan et al., 2007). Kaplan et al. (2005) examined the relationship between school related stress and academic performance and found that there was a significant positive relationship between school related stress and poor academic performance. Additionally, Quesada, Wiemers, Schoofs, and Wolf (2011) found that when children were exposed to a stress inducing test (Trier Social Stress Test for Children), the children displayed heightened cortisol levels and decreased mood. Furthermore, they were asked to perform several memory tasks which revealed that heightened cortisol levels impaired students' performance in memory retrieval tasks. Semple, Lee, Rosa, and Miller (2010), report that attention, which is consistently associated with academic achievement, is impaired when academic pressures create too much anxiety and interferes with the child's ability to study. However, academic tasks are not the only stressor found at school.

The American Psychological Association's Stress in America research found that, of children of ages 8-12, 22% experienced stress regarding peer relationships and 14% found getting along with their peers to be a source of stress (Munsey, 2010). Additionally, the tasks required by teachers and parents often require children to perform well under pressure and can be a source of stress (Quesada et al., 2011). For example, in a study conducted by Mathewson et al. (2012), children's cortisol levels were monitored while they were required to give a speech in front of their peers. The research found that the task of giving a speech to peers increased the children's cortisol levels and led to poorer socioemotional functioning. Liston, McEwan, and Casey (2009) report that this kind of psychosocial stress impairs attentional control and activity in the areas of the brain that mediate attention shifts. This suggests that interaction with peers and socio-emotional relationships and tasks can induce higher levels of stress.

Familial stressors include factors such as maternal depression, prolonged poverty, physical punishment, parental relationship problems, or substance abuse. Parental-relationships and interactions as well as the psychological state of the mother are reported to influence neural activity (Lupien et al., 2009). Additionally physical punishment and abuse have been established as a cause for toxic stress in children, which can disrupt brain development, specifically in the hippocampus (Gershoff, 2016). Chronic childhood poverty has also been linked to an increased risk of psychopathology in adulthood and emotion deregulation creating an increased risk of physical and psychological health consequences later in adulthood (Kim et al., 2013). Shonkoff et al. (2009) claim that these familial stressors qualify as toxic stress in a child's life and can have negative and lasting effects on organ systems as well as disrupting brain architecture, ultimately increasing a child's risk for stress-related illness and cognitive impairment. Proper

nutrition, a loving relationship with parents, and a rich and stimulating environment promoting learning are all important elements to healthy brain development in early childhood (Swick, Knopf, Williams, & Fields, 2013) and can moderate the effects of familial stress on brain development. In fact, Sheridan and McLaughlin (2014) claim that an early environment without cognitive enrichment will lead to reductions in thickness and volume of the cortex in the prefrontal cortex, superior and inferior parietal cortex, and superior temporal cortex as well as reduced dendritic branching and thus reduced performance on complex cognitive tasks and social functioning. Given these architectural disruptions, it is not surprising that children from disrupted homes are observed to be lower in both aptitude and cognitive ability (Medina, 2008).

Traumatic Stress in Latinx Immigrant children

Immigrant populations, such as the Latinx community, are at increased risk of experiencing chronic stress and PTS symptoms as they have may have encountered violent and traumatic experiences in their home country in addition to the significant changes and challenges encountered in moving to a new country (Archuleta & Lakhwani, 2016). Research has described that the majority of trauma experienced by children in the Latinx community consists of complex trauma, exposure to domestic violence, impaired caregiver, emotional abuse, traumatic loss, physical abuse, and sexual abuse (National Child Traumatic Stress Network, 2007). Furthermore, even if a child does not experience a traumatic event first hand, they may experience the trans-generational transmission of traumatic stress. Research shows this can be passed on to each successive generation as the new members observe the effects of the original trauma experienced by their predecessors (Milner et al., 2010, Phipps & Degges-White, 2014). The school environment is where Latinx children are first receiving mental health services from counselors,

teachers, social workers, and psychologists to address the challenges caused by their exposure to trauma and chronic stress (Archuleta & Lakhwani, 2016).

When examining the negative impact that stress has on a child it is also important to know if they have experienced any adverse childhood experiences (ACES) and the potential consequences this may have on them. Research shows that over half (53%) of US children ages 6-17 have experienced at least one ACE, 28% have experienced at least two, and 15% have experienced 3 or more adverse experiences and that children exposed to ACES have significantly lower levels of well-being (Balistereri, 2015). ACES was first introduced by Felitti et al. (1998) as seven categories of adverse childhood experiences including physical, psychological, or sexual abuse, violence against the mother, living with a substance abuser, someone who is mentally ill, suicidal, or has ever been imprisoned. Their study found that there was a strong correlation between the number of ACES a person had and the number of health risk factors they experienced later in life. Additionally, ACES have been shown to impact cognitive and social development (D'Andrea, Ford, Stolbach, Spinazzola, & van der Kolk, 2012). Other negative consequences of ACES include an increased likelihood of drug use at a younger age and a higher risk of drug abuse and addiction. Furthermore, the number of ACES a person reports has a graded relationship to both lifetime and recent depression disorders up to decades after the ACES occurs (Chapman, et al., 2004). Additionally, immigrants, such as those in the Latinx community, are at an even greater risk for experiencing traumatic life events (Archuleta & Lakhwani, 2016). Adverse childhood experiences effect development across multiple domains such as cognitive, emotional, and social development (Dube, Felitti, Dong, Chapman, et al., 2003). More research is needed to determine the short-term cognitive and academic

consequences of high levels of stress or adverse experiences in children, especially those from immigrant populations.

The Consequences of Toxic Stress on Brain Development and Learning

Research shows that healthy brain development is correlated with the events and experiences of early childhood (Swick et al., 2013). Toxic or chronic stress in childhood can have lasting impacts on the memory capabilities of individuals and their learning systems and attention skills (Bremmer, 2008; Medina, 2008; Quesada et al., 2012). In fact, Maldonado et al. (2008) found that a higher level of perceived stress in children aged 9-12 was associated with lower cognitive performance. Additionally, Fernandez-Martin et al. (2015), in a study examining the impact of daily stress on cognitive functioning and academic performance with a group of 100 school age children, found that a child's self-report of the daily stress they perceived to be under was predictive of their school performance and observed to be a more influential factor on academic performance than their basic cognitive functioning. This supports the notion that chronic perceived stress in children can adversely impact cognitive functioning, and academic performance. Furthermore, research consistently shows several brain structures implicated in these tasks are inhibited and even reorganized under chronic stress including the Hippocampus, the Amygdala, and the Prefrontal Cortex (McEwan, 2006).

The hippocampus is the structure in the limbic system that is largely involved in new learning and the formation of memories (Whitlock, Heynen, Shuler, & Bear, 2006). The hippocampus plays an active role in the encoding and retrieval of information in healthy individuals. However, after a traumatic experience, when the child is in a state of physiological hyperarousal, the hippocampus undergoes specific adaptive changes in response to the toxic

stress (McEwan, 2006). This may lead the child to struggle to regulate memories leading to intrusive thoughts, nightmares, or the inability to recall memories and the experience of selective amnesia (Carrion & Wong, 2012).

The prefrontal cortex (PFC) is largely involved in shifting attention and creating stimulus-response associations (Carrion & Wong, 2012). Chronic stress may alter the functional properties of the PFC making filtering out irrelevant information and attention shifting much more difficult (Liston et al., 2009). Additionally, chronic stress may make the formation of goal directed actions through the development of stimulus-response connections more difficult. The disruption of attentional processes and the formation of stimulus response associations is significant because they are both core cognitive processes that are involved in learning (Carrion & Wong, 2012).

The amygdala is the structure in the brain that mediates emotional responses. Under chronic or acute the amygdala forms emotionally charged memories and potentially amygdala hyperactivity. This can lead to anxiety, depression, and emotional reactivity with an increase in sympathetic activity (McEwan, 2012). When a child's emotionally elevated and their attention shifting and memory abilities are impaired, learning becomes very difficult. Additionally, chronic stress has been shown to impact children's emotional regulation and reactivity, ultimately disturbing their social-emotional functioning (Pagliaccio et al., 2015).

Current Study and Hypothesis

The research is clear that chronic stress is pervasively impacting children, especially those in the Latinx immigrant population. Additionally, there is ample evidence suggesting that chronic or toxic levels of stress can alter brain structure and function making learning

challenging for children as well as leading to a multitude of other negative consequences. The purpose of this study was to examine how chronic levels of stress are associated with academic and cognitive ability and how those relationships might differ in Latinx and European American samples. It was anticipated that Latinx students would experience higher levels of stress and these higher levels of stress would be associated with lower academic and social assessment scores, relative to their cognitive ability. Thus, hypothesis one was that high levels of perceived stress would be negatively correlated with academic, social-emotional, and cognitive functioning across the entire sample. The second hypothesis was that high levels of perceived stress would impact the functioning of Latinx students at a higher rate than European American students.

Chapter 2

Methods

Participants

The participants of this study ($n = 47$) were students enrolled in the third grade classes at two elementary schools in rural Oregon. Testing was conducted as a talented and gifted and learning disability screening for students who might have qualified for school services. Doctoral students, trained to administer the assessments, conducted the testing and were supervised by an experienced Clinical Psychologist. Most students in the sample had ages between 7 and 10 years old ($M = 8.97$ years; $SD = 0.53$). The sample was divided fairly evenly by gender (female = 21; 44.7%). The ethnicities of participants were representative of the demographic make-up of rural Oregon, consisting of primarily Latinx ($n = 13$; 27.7%) and European American students ($n = 30$; 66%).

Materials

Three different measures were used in order to evaluate cognitive, social-emotional, and level of perceived stress. The measures needed to be brief and age appropriate for a classroom setting with children between the ages of 7-10. As the social-emotional and perceived stress measures were administered class wide they needed to be brief and not overly invasive or troubling, while still giving a broad picture of how the child was functioning.

The Wechsler Nonverbal Scale of Ability (WNV; Wechsler & Naglieri, 2006) was used as the cognitive measure in order to assess each child's general cognitive ability. The WNV is designed for individuals ages 4 years 0 months through 21 years 11 months, specifically those

individuals from diverse backgrounds or who may have language limitations due to factors such as deafness, language based learning disabilities, or environmental challenges. The four subtest comprising the WNV include matrices, coding, spatial span, and picture arrangement, with the minimum requirement for obtaining a full scale score being the matrices and picture arrangement subtests. Testing took place individually. In studies evaluating the reliability of the WNV, the internal consistency reliability was reported for a normative U.S. sample of 1,350 and a normative Canadian sample of 875 examinees, with coefficients of .91 and .90 respectively (Wechsler & Naglieri, 2006).

Social Emotional Assets and Resilience Scales Short Form (SEARS-SF; Merrell, 2011) was used to measure children's psychosocial functioning. Merrill's research is focused on social and emotional learning in schools as well as social emotional assessment and intervention with a child and adolescent population (Research press publishers, 2016). The SEARS-SF is designed for individuals ranging in age from 5 to 18 years old and can be administered individually or as a group. There are self, teacher, and parent report forms that may be used in any combination. All forms are phrased in a positive manner, portraying desirable characteristics and are designed to measure constructs such as self-regulation, responsibility, social competence, and empathy. The SEARS-SF consists of separate short forms (parent, teacher, and individual) that have 12 items each and reflect the construct of social resiliency and are practical for use in progress monitoring or class and school wide assessment (PAR Inc, 2012).

In studies evaluating the correlations among different versions of the SEARS, all SEARS forms had correlations well over .90 (Nese et al, 2012). Additionally, the internal consistency is

high; in this sample, the Chronbach's Alpha = .95 for the Teacher report and Chronbach's Alpha = .85 for the Student's self-report.

Perceived Stress Scale (PSS; White, 2014), measured the level of stress a child currently believes he or she is experiencing. This measure was selected for its accessibility for elementary aged students. The PSS is a self-report questionnaire comprised of 14 Likert scale items that evaluate the level of stressors a child perceives, how securely they feel supported, how busy they perceive themselves to be, and their emotional tone. An average score on the PSS is 11 with a standard deviation of 4. The internal consistency of the PSS was calculated within this study's sample and was found to be acceptable, Chronbach's Alpha = .495.

The Oregon Assessment of Knowledge and Skills (OAKS), assesses students' mastery of Oregon school content standards. The OAKS is administered to all students in Oregon attending public schools. The OAKS is administered to students in grades 3 through 8 and then in grade 11 with science and writing components administered alternating years after the third grade. Reading and mathematics tests comprise OAKS testing for third grade students, with passing scores being 211 and 212 respectively. The OAKS is administered class- wide by a staff member who is trained as a test administrator. The OAKS was designed to provide information on individual student's academic achievement on benchmark performance standards, inform state policy decisions, inform and improve instructional methods, and to provide information to the public on student's academic performance in Oregon public schools (School Tutoring Academy, 2017).

Procedure

Each doctoral student at the participating schools was trained in how to administer the WNV, SEARS-SF, and the Perceived Stress Scale. Once the doctoral students demonstrated competency with the measures, they coordinated with their respective Elementary schools in order to conduct the testing. Before testing began, opt out forms were sent home to one school and opt in forms were sent to parents at the other school. The opt-out and opt-in forms explained the testing that would be conducted and children whose parents indicated they did not want their child tested, were exempt from testing. While the practicum students waited for the opt-out or opt-in forms to be returned, they completed chart reviews of the academic progress and state testing scores (i.e., OAKS) for each student. Once parental permission was received, the doctoral students coordinated with the classroom teachers to find appropriate times to administer the WNV individually. Once all students in a class completed the WNV, the doctoral student arranged a time to come to the classroom to administer the SEARS-SF and the PSS class-wide, which took 40 minutes. WNV results were reported to the school administrators and the talented and gifted program coordinators of both schools.

Chapter 3

Results

The purpose of this study was to examine the relationship between perceived stress and social, cognitive, and academic functioning. The data were analyzed within a correlation matrix to determine relationships among the variables. Then binomial tests of differences between two correlations was conducted to evaluate differences between the correlations for European American and Latinx samples. The primary hypotheses of this study are that, across the entire sample, high levels of perceived stress would be negatively correlated with academic, social-emotional, and cognitive functioning and, secondly, that high levels of perceived stress would impact the Latinx students at a higher rate than European American students.

Hypothesis 1

The primary hypothesis of this study is that a high level of perceived stress was negatively correlated with academic, social-emotional, and cognitive functioning across the entire sample. Table 1 displays the descriptive data for each measure for the entire sample as well as for the normative sample. With the exception of one subscale of the PSS (business), the means on each scale and subscale for the current sample were within one standard deviation of the normative sample mean. Overall, the participants in the present study closely mirror standardized norms across domains.

Table 1

Descriptive Data for all Measures within the Total Sample and a Normative Comparison Group.

Measure	Current Sample			Normative Sample		Sig*
	M	SD	N	M	SD	
WNV Matrices	53.49	9.564	47	50	10	.016
WNV Coding	53.55	6.775	47	50	10	.001
WNV Spatial span	55.77	9.787	47	50	10	<.001
WNV Pic arrange	49.94	11.380	47	50	10	.969
WNV full scale	104.81	19.389	47	100	15	.096
SEARS-T T score	58.46	10.162	46	50	10	<.001
SEARS-C T score	51.59	10.940	44	50	10	.340
PSS Total Score	11.36	4.378	44	11.73	4.6	.582
PSS Stressors	6.39	2.814	44	6	4.3	.367
PSS Security	1.52	1.849	44	1	1.71	.068
PSS Busy	2.59	1.909	44	5	1.9	.001
PSS Emo. tone	3.27	1.921	44	3	2.23	.352
OAKS ELA Score	2431.11	78.481	35	2499.5	242.81	<.001
ELA OAKS level	2.71	1.073	35	3	*1	.014
OAKS Math Score	2451.74	71.844	35	2514.5	294.68	<.001
Math OAKS Level	2.57	.979	35	4	*1.5	<.001

Note: Significance levels are reported for a one-sample t-test comparing the means for the current sample with those for the normative sample on each measure.

The correlations among all measures for the current sample are displayed in Table 2.

Boxed areas within the table are provided to group all the subscales for a measure together.

Boxes are also shaded to indicate intercorrelations among the subscales of one test (the darkest shade), correlations among tests that had effect sizes ranging from no relationship to small

relationships (the medium shaded areas), and correlations among tests that had effect sizes ranging from small to moderate (no shading). Finally, an asterisk by a correlation indicates that the correlation was statistically significantly different from zero in this sample. Nearly all inter-correlations across tests were significant.

There were small and moderate-sized relationships between WNV and OAKS. All of the moderate-sized effects were found between WNV Matrices and OAKS measures. This indicates that if a child was skilled in WNV Matrices, which taps perceptual reasoning and simultaneous processing, they were better able to perform well on OAKS tests for both Math and English. Relationships between the OAKS measures and other WNV indices and total composite WNV scores were consistently small. There also were consistent small effect sized relationships between OAKS scores and social and emotional functioning (SEARS) and no relationship between OAKS scores and perceived stress (PSS).

There were consistent small effect sized, negative relationships between the PSS and the SEARS, indicating that participants with lower levels of perceived stress had higher social and emotional functioning. There was no relationship between perceived stress (PSS) and WNV scores.

Table 2

Correlation Matrix among all the Scales for the Entire Sample.

	WNV Matrices	WNV Coding	WNV Spatial Span	WNV Pic arrange	WNV full scale	SEARS-T T Score	SEARS-C T Score	PSS Total Score	PSS Stressors	PSS Security	PSS Busy	PSS Emotional tone	OAKS ELA Scale Score	Math OAKS Level	ELA OAKS Level
WNV Coding	.32*														
WNV Spatial Span	.39**	.305*													
WNV Pic arrange	.41**	-.07	.18												
WNV full scale	.58**	.36*	.42**	.44**											
SEARS-T T Score	.18	.32*	.17	-.02	.22										
SEARS-C T Score	.16	.27	.10	-.03	.12	.50**									
PSS Total Score	-.07	-.23	-.33*	.13	.01	-.36*	-.36*								
PSS Stressors	.04	-.21	-.12	.20	.04	-.30*	-.37*	.86**							
PSS Security	-.23	-.18	-.10	-.04	-.17	-.12	-.28	.38*	.39**						
PSS Busy	.02	-.25	-.10	.26	.09	-.26	-.19	.54**	.42**	-.33*					
PSS Emotional Tone	.04	-.06	-.31*	.08	.07	-.23	-.27	.60**	.32*	-.07	.37*				
OAKS ELA Scale Score	.53*	.17	.20	.27	.30	.38*	.27	-.13	-.10	.08	-.04	-.09			
Math OAKS Level	.56*	.17	.16	.20	.22	.39*	.20	-.17	-.09	.03	-.18	.01	.66**		
ELA OAKS Level	.57*	.16	.14	.23	.33	.29	.23	-.04	-.09	.02	.06	.02	.95**	.61**	
OAKS Math Scale Score	.50*	.13	.17	.28	.28	.39*	.21	-.15	-.10	.04	-.19	.00	.68**	.94**	.64**

Inter correlations within a scale

No relationship to small effect sizes

Small to moderate effect sizes

Note: *. Correlation is significant at the 0.05 level (2-tailed).

Hypothesis 2

The second hypothesis examined whether high levels of perceived stress impact the functioning of Latinx students at a higher rate than European American students. Table 3 displays the means, and standard deviations across all the measures and is divided by ethnicity (European American and Latinx). The table also shows the significance (p) of an independent-samples t-test to compare the European American and Latinx samples and the effect size (d') associated with the difference between the two samples. These results indicate that European American students and Latinx students have similar scores across many measures. Notable differences are observed in the WNV subscales of Coding (favoring Latinx) and Picture Arrangement (favoring EA), SEARS Teacher rating (favoring Latinx), and OAKS English Score (favoring EA). This data rejects the hypothesis that Latinx students are experiencing higher levels of perceived stress than European American children. Thus, ethnicity does not appear to be predictive of a student's score on perceived stress, social-emotional skills, non-verbal or cognitive ability.

To further examine the experience of European American and Latinx students, the correlations among all measures was calculate for each ethnic sample. Correlations between measures for both European American and Latinx students are displayed in Table 4. The correlations for European American students on the bottom half of the table (i.e. lower left side) and correlations for Latinx students on the top half (i.e., upper right side). As in Table 2, boxed areas within the table are provided to group all the subscales for a measure together. And as in Table 2, boxes are shaded to indicate intercorrelations (the darkest shade), correlations with no

relationship to small relationships (the medium shade), and correlations among tests that were small to moderate in size (no shading).

Table 3

Mean Scores on each Measure for European American (EA) and Latinx Students

Measure	EA Mean	Latinx Mean	EA SD	Latinx SD	<i>p</i>	<i>d'</i>
WNV Matrices	53.32	52.77	9.31	8.29	.85	.06 (n)
WNV Coding	52.06	56.46	6.56	6.39	.05*	-.63 (m)
WNV Spatial Span	54.23	60.15	8.10	12.38	.07	-.58 (m)
WNV Pic Arrange	52.81	43.15	9.08	10.19	<.01*	.96 (L)
WNV Full Scale	103.52	106.31	21.05	14.61	.67	-.13 (n)
SEARS-T T-Score	57.30	62.69	10.46	7.15	.06	-.68 (m)
SEARS-C T-Score	52.40	51.36	10.48	12.09	.80	.09 (n)
PSS Total Score	11.20	11.18	4.20	4.07	.99	.00 (n)
PSS Stressors	6.17	6.73	2.60	2.97	.56	-.19 (n)
PSS Security	1.53	1.55	1.98	1.75	.99	.01 (n)
PSS Busy	2.57	2.27	1.57	2.45	.72	.20 (s)
PSS Emotional Tone	3.10	3.45	1.90	2.02	.61	-.17 (n)
OAKS English Score	2438.88	2391.14	68.53	108.60	.31	.81 (L)
ELA OAKS Level	2.64	2.14	0.91	1.22	.24	.43 (s)
OAKS Math Score	2453.28	2436.57	68.37	90.96	.60	.19 (n)
Math OAKS Level	2.72	2.43	1.02	1.27	.53	.23 (s)

Note: *p* = Significance levels reported for an independent-samples *t*-test comparing the means for the EA and Latinx samples.

Table 4 *Correlation Matrix among all the Scales for European American (lower left) and Latinx students (Upper right half).*

	WNV Matrices	WNV Coding	WNV Spatial Span	WNV Pic arrange	WNV full scale	SEARS-T T Score	SEARS-C T Score	PSS Total Score	PSS Stressors	PSS Security	PSS Busy	PSS Emotional tone	OAKS English Scale Score	ELA OAKS Level	OAKS Math Scale Score	Math OAKS Level
WNV Matrices		.70*	.69*	.12	.82*	.08	.10	-.54	-.29	-.20	-.33	-.32	.86*	.93*	.87*	.88*
WNV Coding	.25		.61*	-.15	.64*	.22	.38	-.67*	-.56	-.28	-.34	-.47	.81*	.91*	.74	.74
WNV Spatial Span	.27	-.00		.28	.90*	.08	-.04	-.16	.08	-.12	.13	-.54	.89*	.79*	.74	.82*
WNV Pic arrange	.38*	.21	.37*		.53	-.39	-.86*	.53	.52	.41	.22	.16	-.22	-.31	.16	-.01
WNV full scale	.48*	.27	.22	.50*		-.10	-.25	-.20	.02	-.03	-.04	-.40	.88*	.86*	.93*	.91*
SEARS-T T Score	.30	.23	.01	.30	.26		.50	-.55	-.31	.14	-.34	-.66*	.67	.54	.35	.52
SEARS-C T Score	.39*	.28	.22	.52*	.31	.53*		-.65*	-.61*	-.32	-.36	-.32	.52	.62	.24	.38
PSS Total Score	-.00	-.02	-.40*	-.13	.08	-.20	-.16		.84*	.41	.47	.48	-.76*	-.88*	-.60	-.67
PSS Stressors	.13	-.03	-.19	.04	.07	-.22	-.20	.84*		.65*	.29	.04	-.36	-.57	-.25	-.23
PSS Security	-.30	-.12	-.10	-.30	-.21	-.20	-.24	.37*	.30		-.43	-.13	.18	-.08	.31	.31
PSS Busy	.16	-.13	-.10	.27	.21	-.04	.05	.46*	.37*	-.40*		0.11	-.84*	-.80*	-.96*	-.90*
PSS Emotional tone	.11	.10	-.23	-.01	.17	-.04	-.16	.59*	.33	-.09	.43*		-.84*	-.77*	-.69	-.85*
OAKS English Scale Score	.37	-.09	.10	.39	.22	.41*	.23	.17	.13	.03	.53*	.22		.92*	.88*	.95*
ELA OAKS Level	.41*	-.14	.03	.31	.24	.29	.17	.31	.21	.07	.61*	.32	.96*		.88**	.43*
OAKS Math Scale Score	.34	-.20	-.02	.39	.13	.43*	.25	.08	.08	-.06	.26	.30	.56*	.50*		.93*
Math OAKS Level	.48*	-.14	-.02	.33	.07	.39	.20	.07	.09	-.06	.22	.34	.50*	.92*	.96*	

Notes: *. Correlation is significant at the 0.05 level (2-tailed).

And again, as in Table 2, an asterisk indicates that a correlation was statistically significantly different from zero in this sample. Nearly all inter-correlations across tests were significant for both European American and Latinx samples, however, fewer inter-correlations were significant on the WNV for European American than for Latinx students and fewer inter-correlations were significant on the PSS for Latinx students than European American students.

Table 5 was constructed to better summarize the differences between the correlation matrices of the European American and Latinx students' scores. Table 5 shows the results binomial tests (z tests) that assessed for significant differences between the corresponding correlations in the Latinx and European American matrices (i.e., Table 4). As in Table 2 and Table 4, the boxed areas within Table 5 are provided to group all the subscales for a measure together. Positive z-scores indicate that the European American correlation was larger than the Latinx correlation, while a negative z-score indicates the Latinx correlation was larger. These binomial tests are quite conservative because of the small sample sizes for the European American ($n = 30$) and Latinx samples ($n = 13$).

Table 6 is an attempt to summarize the differences seen in Table 5. Specifically, Table 6 shows the number of significant binomial tests in each section of Table 5. The reader can quickly see that most of the significant differences between the correlations among tests for the Latinx and European American students occur among the correlations of the WNV and the OAKS and the correlations of the PSS and the OAKS. An examination of the binomial values in Table 5 reveals that most z-scores in the section with the WNV and the OAKS are negative, indicating that the Latinx sample had larger correlations among these measures than did the European American sample. In other words, a stronger relationship exists between the WNV and the

OAKS for the Latinx students than for the EA students. Interestingly, z-scores in the section with the PSS and the OAKS are positive, indicating that the European American sample had larger correlations; In fact, most correlations between PSS subtests and OAKS scores are positive for the EA sample and negative for the Latinx sample, indicating that the relationship between perceived stress and school achievement is very different for the Latinx and European American students. Specifically, for the Latinx students low stress is correlated with high school achievement but for European American students high stress is correlated with high achievement.

Results of Binomial Tests (z) to Compare the Latinx and European-American Correlations Shown in Table 4

[illegible]

Table 5 (continued) *Results of Binomial Tests (z) to Compare the Latinx and European-American Correlations*

		WNV Matrices	WNV Coding	WNV Spatial Span	WNV Pic arrange	WNV full scale	SEARS-TT Score	SEARS-CT Score	PSS Total Score	PSS Stressors	PSS Security	PSS Busy	PSS Emotional tone	OAKS ELA Scale Score	Math OAKS Level	ELA OAKS Level
PSS Total Score	Z	1.06	1.49	-0.68	-1.33	0.12	0.25	1.26								
	P	.29	.14	.50	.18	.90	.80	.21								
PSS Stressors	Z	1.50	1.96	-0.65	1.74	-1.78	0.71	1.04	1.53							
	P	.13	*.05	.52	.08	.08	.48	.30	.13							
PSS Security	Z	-0.28	0.42	0.05	-1.85	-0.46	-0.84	0.22	-0.11	-1.15						
	P	.78	.67	.96	.06	.65	.40	.83	.91	.25						
PSS Busy	Z	-0.28	0.42	0.05	-1.85	-0.46	-0.84	0.22	-0.11	-1.15	-0.28					
	P	.78	.67	.96	.06	.65	.40	.83	.91	.25	.78					
PSS Emotional Tone	Z	1.11	1.51	0.94	-0.42	1.47	1.88	0.44	0.38	0.76	0.12	0.86				
	P	.27	.13	.35	.67	.14	.06	.66	.70	.45	.90	.39				
OAKS ELA Scale Score	Z	-1.69	-2.23	-2.40	1.16	-2.77	-0.69	-0.62	2.15	0.94	-0.28	3.30	2.63			
	P	.09	*.03	*.02	.25	*<.01	.49	.54	*.03	.35	.78	*<.01	*<.01			
Math OAKS Level	Z	2.03	2.66	-2.80	1.16	-2.67	-0.3	-0.36	1.62	0.6	-0.7	3.09	2.97	-2.28		
	P	*.04	*<.01	*<.01	.25	*<.01	.76	.72	.11	.55	.48	*<.01	*<.01	*.02		
ELA OAKS Level	Z	-2.28	-3.05	-1.90	1.18	-1.94	-0.55	-1.01	3.15	1.59	0.27	3.32	2.49	0.59	-2.14	
	P	*.02	*<.01	.06	.24	*.05	.58	.31	*<.01	.11	.79	*<.01	*.01	.56	*.03	
OAKS Math Scale Score	Z	-1.78	-2.12	-1.79	0.45	-2.82	0.17	0.01	1.41	-0.71	4.04	2.1	2.78	-1.34	-0.55	-1.55
	p	.08	*.03	.07	.65	*<.01	.87	.99	.16	.48	*<.01	*.04	*<.01	.18	.58	.12

Table 6

The Number of Significant Binomial Tests in each Section of Table 5

Scales	Number of Correlation	Number of Differences
WNV & OAKS	20	12
SEARS & OAKS	8	0
PSS & OAKS	20	11
SEARS & PSS	10	1
WNV & SEARS	10	1
WNV & PSS	25	1

Chapter 4

Discussion

Addressing Hypotheses

Results of this study suggest that a positive, large-sized relationship exists between WNV matrices subtest scores and student achievement (OAKS). Further, a moderate-sized positive relationship was found between social and emotional functioning, especially as judged by the teacher (SEARS-T), and school achievement. Finally, a small to moderate-sized negative relationship between social and emotional functioning and students' level of perceived stress (PSS) was found.

European American and Latinx Students received commensurate scores across most domains. Ethnicity does not appear to be predictive of a student's score on perceived stress, social-emotional skills, non-verbal cognitive ability (i.e., full-scale and matrices), or state achievement math scores. The Latinx and EA students did differ on the OAKS English subtest and the WNV scales of coding, spatial span, and picture arrangement.

Finally, findings indicated there are some notable differences in the way perceived stress and non-verbal cognitive abilities impact European American and Latinx children's school achievement. Specifically, nonverbal cognitive ability, as measured by the WNV matrices subtest, was highly correlated to Latinx performance on the OAKS tests both for English and for math whereas these factors were weakly correlated for European American students. Additionally, data suggests that although the level of stress that European American and Latinx students are experiencing is commensurate, the way their stress is related to their performance on

state testing is different. Results suggest that perceived stress is negatively related to performance on the OAKS for Latinx students, but not for European American Students. Furthermore, for European American students, teacher perception of their social emotional functioning was associated with higher scores on OAKS testing. This suggests that the path to performance on the OAKS may be different for European American children and Latinx children, with European American children relying more heavily on social emotional skills and Latinx children relying on non verbal cognitive ability.

Convergent Findings

There was a small to moderate negative correlation for students in the present study between their level of perceived stress and their social-emotional functioning. These findings are consistent with research indicating that chronic stress negatively impacts emotional regulation and reactivity, making social-emotional regulation challenging (McEwan, 2012; Pagliaccio et al., 2015). Additionally, research has established that when a child becomes emotionally elevated their attention shifting and memory abilities become limited, causing learning to become difficult (Pagliaccio et al., 2015). Furthermore, hyperactivity in the amygdala, the emotional center of the brain, can lead to increased risk of anxiety and depression (McEwan, 2012).

Additionally, overall, student's level of perceived stress and emotional tone were not related to their short term working memory abilities. This might lead the reader to conclude that higher levels of stress have no relationship with children's abilities to hold and manipulate information in their short term memory, an essential task in academic settings. However, for the Latinx students perceived stress and emotional tone were both negatively related with both short term working memory (small effect size) and academic achievement (moderate to large effect

sizes). The results for Latinx students is consistent with previous research which indicates that chronic perceived stress is associated with lasting impacts on memory abilities as well as lower cognitive and academic performance (Bremmer, 2008; Medina, 2008; Maldonado et al., 2008; Quesada et al., 2012). Thus, the data suggests that when a Latinx student has elevated levels of stress, his or her memory capabilities are likely to become compromised.

Furthermore, Latinx student's social-emotional skills and performance on statewide achievement testing was negatively correlated to their level of perceived stress, whereas this was not true for their European American counterparts. This may indicate that the nature of the perceived stress was different for the Latinx and European American students. This aligns with previous research, indicating that Latinx children are at greater risk for exposure to traumatic life events as they are often apart of immigrant communities, which can lead to an increased risk of chronic stress (Archuleta & Lakhwani, 2016; National Child Traumatic Stress Network, 2007). Thus, it is possible that the perceived stress impacting the Latinx students is comprised of more traumatic experiences and thus is impacting them at a higher rate. However, further research would be needed to confirm this hypothesis, as the etiology of the stress experienced by the participants in the present study was not adequately explored.

Divergent Findings

Findings in the present study indicated that for the overall sample, there were very small relationships between a child's level of perceived stress and their academic achievement or non-verbal cognitive ability. This is divergent from previous research indicating that a child's level of chronic stress is a significant predictor of their academic performance, at an even higher rate than cognitive ability (Fernandez-Martin et al., 2015; Maldonado et al., 2008).

Additionally, it was anticipated that Latinx students were experiencing a higher level of perceived stress than their European American counterparts. However, the data rejected this hypothesis as Latinx and European American students reported commensurate levels of perceived stress. This is counter to research indicating that the Latinx community is at increased risk of experiencing chronic stress (Archuleta & Lakhwani, 2016). However, because there were far more correlations between their level of stress and functioning in other domains, than their European American peers, it is possible that though their level of stress is commensurate to their peers, they have experienced a higher number of ACES and thus are more affected by their stress. Again, this hypothesis would need to be tested by exploring the ACES of both the European American and Latinx students before it could be confirmed or rejected.

Implications of Current Findings

Results from the present study suggests that there are no objective differences between levels of perceived stress, social-emotional functioning, the matrix subscale of the WNV, or statewide math achievement scores, in European American and Latinx students. However, results do indicate that there is a stronger relationship between the perceived stress of Latinx students and their social emotional functioning and academic achievement, than for their European American peers. Importantly, the relationship is negative for Latinx students and positive for European American students. Additionally, findings indicate that European American students rely more heavily on their social- emotional skills when facing academic tasks, while Latinx students rely more heavily on their non-verbal cognitive ability to guide their performance on academic tasks. This indicates that although scores across domains are commensurate, there are differences in the relationship among the domains for Latinx and European American students.

This provides another piece of the puzzle in understanding the impact of chronic stress on children's functioning. This data proposes the question of why perceived stress is correlated negatively to academic achievement and social emotional functioning for Latinx students and positively for European-American students and invites further research into this question.

Limitations

Limitations of the present study include a small, geographically limited sample size, a lack of an adequate measure to evaluate for ACES in children, and the subjective nature of the stress and social-emotional measures. Statistical power was limited by the small sample size. This study would need to be replicated with a far greater number of participants to come to increase confidence in these results. Additionally, without a measure of the participants ACES it is impossible to know the nature of their perceived stress. This limits the interpretation around why the Latinx students had a stronger relationship between their perceived stress level, social emotional functioning, and academic achievement. Additionally, it is impossible to parse out the impact that traumatic stress vs. daily life stresses have on the participants. Finally, both the PSS and SEARS were subjective measures. Data would be more reliable had stress been evaluated using cortisol levels or another objective method.

Suggestions for Future Research

Future research is needed to continue clarifying the impact of chronic stress on children's functioning, as this area has been overall rather neglected. Additionally, future research should examine the nature of stress that European American and Latinx students are experiencing. A measure that could accurately, accessibly, and ethically evaluate for a child's sources of stress,

both historical trauma, i.e. ACES and daily hassles, would help to facilitate this future research, as well as adding immeasurable value to screening for children at-risk of chronic stress.

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Appendix A

SEARS



ABOUT ME

To be completed by students in Grades 7 to 12 (ages 13 to 18 years).

My name _____

Today's date ____/____/____ Birth date ____/____/____ My age _____ I am a: ☐ male ☐ female

My school _____ My grade _____

DIRECTIONS

The following is a list of 12 sentences that describe ways that people sometimes feel, think, or act. Read each sentence and circle the number that best describes you.

Circle **0** if the sentence is **NEVER** true for you. Circle **1** if the sentence is **SOMETIMES** true for you. Circle **2** if the sentence is **OFTEN** true for you. Circle **3** if the sentence is **ALWAYS** (or **ALMOST ALWAYS**) true for you.

There are no right or wrong answers. Please read every sentence, and do your best to rate yourself on each item.

Remember: NEVER = 0 SOMETIMES = 1 OFTEN = 2 ALWAYS = 3

	Never	Sometimes	Often	Always
1. I try to help other people when they need help.	0	1	2	3
2. I make friends easily.	0	1	2	3
3. Other kids ask me to hang out with them.	0	1	2	3
4. Other people like me.	0	1	2	3
5. I like doing things for others.	0	1	2	3
6. I am good at making decisions.	0	1	2	3
7. I stay in control when I get angry.	0	1	2	3
8. I care what happens to other people.	0	1	2	3
9. I make good decisions.	0	1	2	3
10. I am a responsible person.	0	1	2	3
11. I know how to calm down when I am stressed out or upset.	0	1	2	3
12. I know how to identify and change my negative thoughts.	0	1	2	3

Raw score total

T score (90% CI)

Percentile

Tier

Score level

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Appendix A: SEARS Teacher-Report Short Form

**IDENTIFYING INFORMATION**

To be completed by a teacher or other school personnel for students in Grades K to 12 (ages 5 to 18 years).

Child's name _____
 Today's date ____/____/____ Child's birth date ____/____/____ Child's age ____ Child's sex: ☐ male ☐ female
 Child's school _____ Child's grade _____
 Name of person completing this form _____ Relationship of rater to child _____
 List the settings where you observe or interact with this child _____

DIRECTIONS

The following is a list of 12 sentences that describe ways that students sometimes feel, think, or act. Please rate *how true* you think these items have been for this student *during the past 3 to 6 months*.

Circle **0** for **NEVER** true, or if you have not observed that characteristic. Circle **1** for **SOMETIMES** true. Circle **2** for **OFTEN** true, and circle **3** if you think the item has been **ALWAYS** or **ALMOST ALWAYS** true for this student during the past few months.

Please complete all items.

Remember: NEVER = 0 SOMETIMES = 1 OFTEN = 2 ALWAYS = 3

	Never	Sometimes	Often	Always
1. Is comfortable talking to many different people.....	0	1	2	3
2. Makes friends easily	0	1	2	3
3. Tries to understand how other students feel when they are not doing well	0	1	2	3
4. People think she/he is fun to be with	0	1	2	3
5. Understands how other people feel	0	1	2	3
6. Cares what happens to other people	0	1	2	3
7. Is dependable, someone you can rely on	0	1	2	3
8. Thinks of her/his problems in ways that help	0	1	2	3
9. Accepts responsibility when she/he needs to.	0	1	2	3
10. Knows how to identify and change negative thoughts	0	1	2	3
11. I trust her/him	0	1	2	3
12. Can identify errors in the way he/she thinks about things.	0	1	2	3

Raw score total

T score (90% CI)

Percentile

Tier

Score level

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Appendix B

Perceived Stress Scale

Children's perceived stress, occupational patterns, and health_Fall_2006 BPW

Perceived Stress Scale (Children)

The following questions ask you about your feelings and thoughts during the last week. For each question you will be asked to circle the picture that best fits your answer.

Name:

Date:

Age:

Birthday:

I am a:

Boy

Girl

1. Which one has a lot of something?



2. In the last week, how often did you feel rushed or hurried?



3. In the last week, how often did you have enough time to do what you wanted?



4. In the last week, how often did you feel worried about being too busy?



5. In the last week, how often did you feel worried about grades or school?



6. In the last week, how often did your mom and/or dad make you feel better?



7. In the last week, how often did your mom and/or dad make you feel loved?



Children's perceived stress, occupational patterns, and health_Fall_2006 BPW

8. In the last week, how often did you feel scared or nervous?



9. In the last week, how often did you feel angry?



What made you angry?

10. In the last week, how often did you feel happy?



What made you happy?

11. In the past week, how often did you get enough sleep?



12. In the past week, how often did you have fights with your friends?



13. In the past week, how often did you play with your friends?



14. In the past week, how often did you feel that you had enough friends?



Thank You!

Appendix C

Curriculum Vitae

Annelise M. Manns

Education

GEORGE FOX UNIVERSITY- Newberg, OR

Masters in Clinical Psychology, Spring 2016

Doctorate in Clinical Psychology, Anticipated Graduation Date: Spring 2019

Dissertation: Date Prelim Completed: 10/12/2016 Date Defense Completed: 05/23/18

Canadian University College – Lacombe, AB

Bachelor of Science in Psychology, Graduated April 2014 GPA: 3.95

Additional Training

ACT BOOTCAMP 2017

San Diego, CA

February 16-19, 2017

Training:

- ◆ Intensive 4-day experiential and skill-building training event led by Steven Hayes and colleagues.
- ◆ Orientation to core theoretical foundations of ACT.
- ◆ Skill development and clinical utility of ACT.
- ◆ Application and development of ACT clinical skills.

Supervised Clinical Experience

INTERNSHIP

Psychology Trainee

George Fox Integrated Care Internship

PMG Sunnyside

August 2018- Present

Population:

- ◆ Patients at PMG Sunnyside who are referred by their primary care providers for behavioral health services. PMG Sunnyside is an outpatient medical clinic in Clackamas Oregon with internal medicine, family medicine, and pediatric specialty providers.

Patients are diverse across presenting concern, socioeconomic status, race, ethnicity, disability, age, education, and sexual orientation.

Clinical Duties:

- ◆ The George Fox Integrated Care Internship is a 12 month, 2000 hour internship. Activities include one day per week of didactic training, group supervision, and supervision of practicum students with Supervision of Supervision following. The remainder four days each week are then spent at the interns home clinic. Interns complete a quality improvement project and one comprehensive assessment in addition to their clinical hours.
- ◆ Provide behavioral health services to an average of 6-8 scheduled patients per day for 25-30 minutes sessions.
- ◆ See patients for approximately 1-6 sessions, with flexibility as needed.
- ◆ Provide “warm handoff” behavioral consultations for patients with mental health or behavioral health concerns who would like to access BHC services.
- ◆ Function as a part of patient’s multidisciplinary care team to offer behavioral health perspectives across diverse presenting concerns, consistent with a biopsychosocial model of care.
- ◆ Use Solution-Focused, CBT, ACT, and Brief Behavioral Therapy in appointments with patients.
- ◆ Adapt and implement ACT on Health, an ACT based group program for weight management.
- ◆ Chart concurrently in EPIC, PMG Sunnyside’s electronic medical record.
- ◆ Receive 2 hours of supervision from Mary Steers, PhD and 1 hour of group supervision with Kristie Knows His Gun, PsyD per week.

PRACTICUM III

Psychology Trainee
Physicians Medical Center,
August 2017- June 2018

Population:

- ◆ Patients at Physicians Medical Center (PMC) who are referred by their primary care providers for behavioral health services. PMC is an outpatient medical clinic in McMinnville Oregon. Patients are diverse across socioeconomic status, race, ethnicity, disability, and sexual orientation, and range from infancy to old age.

Clinical Duties:

- ◆ Practicum activities include two 8-10 hour days per week providing behavioral health services.

- ◆ Provide behavioral health services to approximately 6 patients per day for 25-30 minute sessions.
- ◆ See patients approximately for approximately 1-5 sessions.
- ◆ Conduct a chronic pain group mandated for all patients who are prescribed an opiate, consisting of four 1-hour sessions on a monthly rotation.
- ◆ Provide “warm handoff” behavioral consultations for patients with mental health concerns who would like to access BHC services.
- ◆ Consult with medical providers on patients and provide mental health perspectives on patient functioning.
- ◆ Coordinate care with Yamhill Community Care Organization and other outside providers for patients needing additional physical and mental health services. This can include psychiatrists, schools, therapists, and other human services.
- ◆ Research patient insurance and help them to access additional care covered by their insurance plan.
- ◆ Function within a multi-disciplinary team to provide a biopsychosocial model of care.
- ◆ Use Solution-Focused, CBT, ACT, and Brief Behavioral Therapy in appointments with patients.
- ◆ Chart concurrently during appointments in Centricity, the patient medical record system.
- ◆ 1-hour of individual and 1-hour of group supervision with Dr. Kristie Schmidlkofer each week.

PRACTICUM III- SUPPLEMENTAL PRACTICUM

Psychology Trainee
Evergreen Clinical
June 2017- Present

Population:

- ◆ Adults aged 20-65 of diverse ethnic, religious, and cultural backgrounds in down town Portland, Oregon. Clients are of lower socioeconomic status and utilize Evergreen Clinical, a non-profit organization, for accessible ACT counseling services. Clients presented with a variety of mental health concerns (e.g. borderline personality disorder, major depressive disorder, substance abuse, and anxiety disorders).

Clinical Duties:

- ◆ Supplemental activities include an average of 5-hours of direct client contact per week, providing 55-minute individual therapy sessions.
- ◆ Formulate a diagnosis and treatment plan.
- ◆ Complete weekly progress notes for each 55-minute session.
- ◆ Use Doxyme, a HIPPA compliant video chat app, for therapy with a remote client.

- ◆ Implement evidence-based interventions from an ACT theoretical orientation.
- ◆ Engage in supplementary reading, research, and engagement with ACT books and theory.
- ◆ 1-hour of supervision on a bi-weekly basis with Dr. Brian Goff, PhD.

PRACTICUM II

Psychology Trainee

Linfield College Student Health, Wellness, and Counseling Center

September 2016- May 2017

Population:

- ◆ Primarily traditional college aged students (18-23 years old) who identify diversely in regards to sexual orientations, ethnic/racial background, religious/spiritual affiliation, and socioeconomic background. Student presenting problems vary, including depression, anxiety, phase of life problems, academic concerns, ADHD, LGBTQ concerns, personality disorders, substance abuse, suicidal ideation, trauma, and relational distress.

Clinical Duties:

- ◆ Short-term Solution-Focused Therapy, with some long-term opportunities depending on clinical needs.
- ◆ Therapeutic theoretical orientation flexible, including solution-focused therapy, motivational interviewing, ACT, CBT, DBT, and Person-Centered Therapy.
- ◆ Therapy consists of 6-10 fifty-minute sessions.
- ◆ An intake report, weekly progress note, and termination summary is completed for each student.
- ◆ Risk assessment and safety planning conducted for suicidal and homicidal ideation and self-harm.
- ◆ Cognitive, Achievement, Personality, and ADHD assessments are conducted at the rate of approximately one assessment per month.
- ◆ Integrated reports addressing the referral question and findings are written and presented to students in the feedback session, with referral to Learning Support Services to access academic accommodations.
- ◆ Interprofessional collaboration with SHWC primary care providers for both therapy and assessment students.
- ◆ 1-hour of supervision with SHWC Psychiatrist, Dr. Sally Godard, and one hour with Licensed Clinical Psychologist, Dr. Joel Gregor, PsyD, per week.

PRACTICUM II- SUPPLEMENTAL PRACTICUM

Psychology Trainee

George Fox Health and Counseling Center

October 2016- April 2017

Population:

- ♦ George Fox University undergraduate students with diverse ethnic backgrounds, religious beliefs and socioeconomic statuses. Students presented with a variety of mental health concerns (e.g. anxiety, adjustment disorder, depression, trauma, and relational distress).

Clinical duties:

- ♦ Supplemental activities include 3-6 hours of direct client contact (therapy and intakes) per week and 1-2 hours of paperwork.
- ♦ Conduct an intake, diagnostic formulation, and create a treatment plan from a biopsychosocial spiritual perspective, and then provide an end of treatment diagnosis and termination summary.
- ♦ Complete weekly progress notes documenting treatment for each 50-minute therapy session.
- ♦ Implement evidenced-based interventions as a part of brief solutions focused therapy (generally 6-8 sessions).
Complete risk assessments and safety plans for suicidal ideation and consult with on-site psychologists regarding student safety, assessment needs, and medication consultation.
- ♦ 1-hour of supervision by Dr. Joel Gregor, PsyD, on a bi-weekly basis.

PRACTICUM I

Psychology Trainee
St. Paul Elementary School,
September 2015- June 2016

Population:

- ♦ Elementary School students ranging from grade one to grade six from diverse ethnic, religious, and socioeconomic status backgrounds, as well as several students from St. Paul Middle School and High School.

Clinical duties:

- ♦ Short-term Evidence-Based Therapy, with some long-term opportunities. Therapeutic orientation primarily grounded in Behavioral Therapy with an emphasis in Systems.
- ♦ A variety of interventions were tailored to student needs, including interventions from REBT, CBT, Interpersonal therapy, solution focused therapy, ACT therapy, and Behavioral therapy.
- ♦ Write progress notes for each session.
- ♦ Create treatment plans, including diagnostic impressions and treatment goals.
- ♦ Conduct in class behavioral observations of students.
- ♦ Cognitive and Achievement Testing for LD, ADHD, and behavioral referrals.
- ♦ IEP meetings with principal, teacher, parents, and special education director.
- ♦ Conduct 12-week group therapy sessions using Strong Kids Curriculum.

- ♦ 1- hour of individual supervision with a master's level Pre-Intern doctoral student (who was supervised by a clinical psychologist).
- ♦ 1-hour of individual supervision with Dr. Elizabeth Hamilton, PhD weekly.

PRE-PRACTICUM STUDENT THERAPIST TRAINEE

January- April 2015

Population

- ♦ University undergraduate students with diverse ethnic backgrounds, religious beliefs and socioeconomic statuses. Students presented with a variety of mental health concerns (e.g. anxiety, adjustment disorder, and depression.)

Clinical duties

- ♦ Administer a diagnostic intake report, develop treatment plans, and keep weekly progress notes.
- ♦ Provide weekly 50-minute sessions of individual therapy.
- ♦ Administer the Session Rating Scales and Outcome Rating Scales.
- ♦ Case conceptualization (Person Centered Therapy) and impressions.
- ♦ Presenting a case in clinical team (a team comprised of doctoral students from various cohorts supervised by a licensed clinical psychologist).
- ♦ Weekly supervision with a group of peers and a master's level Pre-Intern doctoral student (who was supervised by a licensed psychologist).

Assessment Competencies

WAIS-IV	TOMM	Booklet Categories	16 PF
WCJ-IV COG	WMS-IV	Boston Naming	FACES-IV
WCJ-IV ACH	CVLT-II	RBANS	MMPI-2
WISC-V	WCT	DKEFS	MMPI-2 RF
WIAT-III	CTONI-II	Rey Complex Figure	PAI
WRAT	NEPSY-	Grooved Pegboard	MCMI-III
WNV	Speeded Naming	BCT	BASC-3
EVT	CPT3	CAARS	Roberts-2
PPVT	GORT-5	Stroop Color & word	Kinetic Family
Drawing			

Additional Work and Supervision Experience

FOURTH YEAR MENTORL: GEORGE FOX CLINICAL TEAM

September 2017-Present

- ♦ Meet weekly with a second-year doctoral student to provide supervision.
- ♦ Guide professional development, oversee clinical work, and provide mentorship.
- ♦ Supervised by Dr. Bill Buhrow, PsyD.

CLINICAL FOUNDATIONS TEACHING ASSISTANT: GEORGE FOX UNIVERSITY

September 2017-Present

- ♦ Responsible for overseeing 4 first-year students enrolled in the course.
- ♦ Lead weekly, 80-minute lab sessions that support students in the development of therapeutic skills grounded in person-centered theory.
- ♦ Facilitate extra support and mentoring for students as they develop clinical skills and adjust to graduate school.
- ♦ Monitor progress in skill development and provide regular feedback to students.
- ♦ Responsible for evaluating videoed therapy sessions for development of clinical skills.
- ♦ Responsible for grading and providing detailed feedback on assignments and papers.
- ♦ Participate in weekly 1-hour meetings with fellow TA's and Course instructor to guide course development and student evaluation.
- ♦ Responsible for entering student grades into online grading system.
- ♦ Supervised by Dr. Glena Andrews, PhD.

RESEARCH METHODS TEACHING ASSISTANT: GEORGE FOX UNIVERSITY

January 2017-April 2017

- ♦ Responsible for reading student research introduction and methods sections.
- ♦ Work alongside professor to grade and enter assignment scores into grading system.
- ♦ Provide students feedback on their grammar, APA formatting, and written content.
- ♦ Meet with students to offer additional research support when needed.

COGNITIVE ASSESSMENT: GEORGE FOX UNIVERSITY

September 2016-December 2016

- ♦ Responsible for overseeing 6 students enrolled in the course.
- ♦ Lead weekly, 1-hour lab sessions that instruct, demonstrate, and evaluate cognitive assessment skills and understanding.
- ♦ Facilitated extra support and mentoring in assessments in one-on-one meetings with students.
- ♦ Provided both in person and written detailed feedback to students.
- ♦ Taught a portion of the lecture in professor's absence.
- ♦ Responsible for evaluating videoed testing sessions and assessment protocols for completeness and accuracy.
- ♦ Participated in weekly 1.5-hour meetings with fellow TA's and Course instructor to guide course development and student evaluation.
- ♦ Responsible for entering student grades.

- ♦ Supervised by Dr. Glena Andrews, PhD.

COMMUNITY SUPPORT WORKER: COSMOS GROUP OF COMPANIES

June 2013- August 2013; April 2014- August 2014

- ♦ Responsible for supporting individuals in recreational, leisure, and educational activities.
- ♦ Foster effective communication and provide support to individuals who are struggling.
- ♦ Encourage client's participation in activities by acting as a role model.
- ♦ Determine individuals' desires and abilities.
- ♦ Complete daily paperwork for each client.
- ♦ Provide guidance to enhance social independence.
- ♦ Attend team, agency and committee meetings.

Research Experience

PROVIDENCE MEDICAL GROUP SUNNYSIDE**October 2018- Present***An Examination of the Effectiveness of an ACT Group Program for Weight Management*

- ♦ Quality improvement project for weight management in medical care homes.
- ♦ Research conducted under Mary Steers, PhD and Kristie Knows His Gun, PsyD.
- ♦ A pre and post test examination using the IES-2, a valued living measure, and the ACES in order to evaluate the effectiveness of ACT on Health, an act based group program for weight management.
- ♦ Research conducted with patients of PMG Sunnyside in Clackamas Oregon.

GEORGE FOX UNIVERSITY

October 2015- Present

Cognitive and Academic Effects of Aversive Stress on Latino/Latina and European American Elementary Students

- ♦ Primary Research on dissertation project under Dr. Gathercoal, PhD, Dr. Hamilton, PhD, and Dr. Knows His Gun, PsyD.
- ♦ Exploration using the WNV, SEARS, PSS, and OAKS state testing to evaluate the relationship between chronic perceived stress and social-emotional functioning, academic performance, and cognitive ability.
- ♦ Research conducted with third grade students in two rural elementary schools in Oregon.
- ♦ Dissertation was defended May 23, 2018 and is currently being revised for journal submission.

GEORGE FOX UNIVERSITY

October 2015- August 2017

Implementation of Evidence-Based Social Emotional Programs in Rural School Settings

- ♦ Assistant researcher alongside Dr. Hamilton, PhD and Katie Dunbar, MA.
- ♦ Conducted a pre- and post evaluation of the effects of implementing the Strong Kids social-emotional curriculum to clinically referred and non-referred elementary aged students.
- ♦ Findings indicate the Strong Kids curriculum was effective in increasing student knowledge concerning social-emotional skills as well as increasing their teachers report of observed positive social-emotional skills.
- ♦ Research was submitted as a poster presentation to the American Psychological Association and was presented as a poster at the APA 2017 Conference in Washington, DC.

GEORGE FOX UNIVERSITY

January 2016-May 2017

Cultivating Mindful Eating: An Intervention for College Aged Students

- ♦ Primary researcher under Dr. Gathercoal, PhD and Dr. Peterson, PhD.
- ♦ Developed an evidence-based mindful eating curriculum for the George Fox Undergraduate Lifelong Fitness Labs.
- ♦ Lead three 45-minute sessions teaching mindful eating, providing practical skills and opportunity for application.
- ♦ Conducted a Pre and Post evaluation of student's awareness of their eating behaviors using the Intuitive Eating Scale-Two (IES-2).
- ♦ Results indicated that the mindful eating intervention was positively correlated to students' overall awareness of their eating behaviors and their increased reliance on internal hunger and satiety cues for eating.
- ♦ Research was presented as a poster for the 2017 Oregon Psychological Association conference in Eugene, OR.
- ♦ This poster presentation received the 2017 OPA Award for Education & Systems Competency.

GEORGE FOX UNIVERSITY

June 2015- May 2016

Mindfulness Training: A Stress Management Intervention for School Aged Children

- ♦ Assistant researcher with Dr. Gathercoal, PhD and April Rose, MA.

- ♦ Conducted a Pre and Post study of the effects of a weeklong camp teaching positive coping strategies with stress on children's understanding of adaptive ways of coping with stress, including mindfulness and relaxation techniques.
- ♦ Findings indicated children found mindfulness to be a helpful way to manage stress that they planned to continue using.
- ♦ Research was presented at the 2016 Oregon Psychological Association Conference in Portland, Oregon.
- ♦ This poster presentation received the 2016 OPA Award for Education & Systems Competency.

Conference Publications

Dunbar, K., Manns A., & Hamilton, E. (2017, August) *Implementation of Evidence-Based Social Emotional Programs in Rural School Settings*. Poster session presented at the 2017 American Psychological Association Conference, Washington, DC.

Manns, A., Dunbar, K., Marston, A., & Gathercoal, K. (2017, May) *Cultivating mindful eating: An intervention for college aged students*. Poster session presented at the 2017 Oregon Psychological Association Conference. Eugene, Oregon.

Manns, A., Dunbar, K., Hamilton, E., Tuning, C. (2016, October) *Promoting Social-Emotional Development in Rural Elementary School Students*. Slide show presentation at the Rural Behavioral Health Practice Conference. Newberg, Oregon.

Rose, A., Manns, A., Gathercoal, K. (2016, May) *Mindfulness Training: A Stress Management Intervention for School Aged Children*. Poster session presented at the 2016 Oregon Psychological Association Conference. Portland, Oregon.

Volunteer Experience

GEORGE FOX UNIVERSITY- Newberg, OR
Co-leader of the Religion and Spirituality Student Interest Group, October 2016- Present
RED DEER REGIONAL HOSPITAL– Red Deer, AB
Patient visitation and chapel programming, January 2013- August 2014
CENTRAL ALBERTA COMMUNITY SERVICES CENTER- Red Deer, AB
Provide food and support to those in need, September 2012- June 2014
MAMAWI ATOSKETAN NATIVE SCHOOL- Ponoka, AB

Provide support during the school day to students, March 2013- April 2013
HOBEEMA ADVENTIST CHURCH- Hobeema, AB
Native ministries, January 2013- April 2013

References

PROVIDENCE MEDICAL GROUP SUNNYSIDE- Internship Supervisor
Mary Steers, PhD (503)-851-1734

GEORGE FOX INTEGRATED CARE INTERNSHIP- Internship Training Director
Kristie Knows His Gun, PsyD, (406)-670-3780

EVERGREEN CLINICAL- Supervisor at Evergreen Clinical
Brain Goff, PhD (503)-260-3571

PHYSICIANS MEDICAL CENTER- Practicum III Supervisor
Kristie Schmidlkofer, PsyD, (503)-260-3571

GEORGE FOX UNIVERSITY- Director of GFU Health and Counseling Center
Bill Buhrow, PsyD, (530)-554-2340

LINFIELD COLLEGE Practicum II Supervisor
Sally Godard, M.D., (503)-857-7660

GEORGE FOX UNIVERSITY- Practicum II Supervisor
Joel Gregor, PsyD, (503)-899-2293

GEORGE FOX UNIVERSITY- Practicum I Supervisor
Elizabeth Hamilton, PhD, (503)-550-8852

GEORGE FOX UNIVERSITY- Director of Clinical Training
Glena Andrews, Ph.D., (503)- 554-2386

GEORGE FOX UNIVERSITY- Director of Graduate Program of Clinical Psychology
Mary Peterson, Ph.D., (503)- 554-2386