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Developmental and Autism Screening Process by Pediatrician Offices in El Paso County

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DEVELOPMENTAL AND AUTISM SCREENING PROCESS BY
PEDIATRICIAN OFFICES IN EL PASO COUNTY

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DEVELOPMENTAL AND AUTISM SCREENING PROCESS BY PEDIATRICIAN

OFFICES IN EL PASO COUNTY

by

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THESIS

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Abstract

Autism spectrum disorders (ASD) is a group of neurodevelopmental disorders characterized by either an emerging and gradual course or developmental regression in early childhood. Symptoms of ASD typically include deficits in social interaction and communication with unusually restricted interests. Due to the concern of the recent increase in diagnosis of ASD and the broadening of ASD diagnosis with the updates to the Diagnostic and Statistical Manual (DSM), the process of how qualified physicians and other clinicians go about diagnosing ASD is often overlooked. Early diagnosis of ASD is crucial given that the earlier the diagnosis is given, the sooner intervention and therapy can begin for the child. A survey was created and pediatricians within the El Paso county area responded to the survey which sought to discover if developmental screenings were being conducted for developmental/autism in children in the El Paso county region. Results of the survey indicated that developmental/autism screens are most often conducted by a pediatrician; both a parent interview and a formal screening tool are utilized for developmental/autism screens; and failed developmental/autism screens are most often referred to early childhood intervention and developmental pediatrician.

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Chapter 1: Introduction

Autism Spectrum Disorders (ASD) is a group of neurodevelopmental disorders characterized by deficits within three domains: communication/language, social interaction, and behavioral oddities. For a positive diagnosis of autism, there must be at least two marked social deficits, at least one marked symptom in each domain, and a total of at least six of the potential 12 symptoms listed in the DSM-IV, with initial onset of symptoms before three years of age. Diagnosis of autism is accomplished with a battery of tests and with a collaboration of several health professionals.

Some screening tools typically used by pediatricians to discover developmental lags include: The Modified Checklist for Autism in Toddlers (M-CHAT), The Parent's Evaluation of Developmental Status (PEDS), The Parent's Evaluation of Developmental Status: Developmental Milestones (PEDS:DM), The Ages and Stages Questionnaire (ASQ), and the Ages and Stages Questionnaire-Social Emotional (ASQ-SE). The M-CHAT is used to screen children from ages 16-30 months for ASD (Coleman, 2012). The PEDS is a screening test that is unique in that it addresses when parents' concerns suggest problems that require referral and which parents' concerns are best handled with advice and reassurance (Sices, Stancin, Kirchner & Bauchner, 2009). The PEDS:DM is a screening test that contains questions concerning different developmental domains: fine motor, receptive language, expressive language, gross motor, self-help, and social-emotional (Glascoe & Robertshaw, 2007). The ASQ is a screening test that uses information provided by parents to assess whether a child is in need of further assessment for ASD. The ASQ-SE was developed to be used in conjunction with the ASQ and it also uses information provided by parents to assess whether a child is in need of further assessment for ASD (ASQ, 2011).

The variability of ASD and the symptoms displayed make diagnosing a difficult task. An American study recently found that only eight percent of pediatricians regularly screen for symptoms of ASD (Qian, Reichle, & Bogenschutz, 2011). With the number of tests and assessments available to warrant further testing and the number of professionals required to make a proper diagnosis, the problem of diagnosing ASD is only intensified (Ahmed & Mahmood, 2011).

With the transition to the DSM-V, the diagnosis of ASD will change yet again. Changes made to create the DSM-V were done to reflect the clinical findings and advances made in science since the DSM-IV. Changes in the DSM-V have been confronted by controversy. One change is the collapse of the symptoms of social interaction and communication domains into one social communication domain. The diagnosis of Asperger's syndrome and PDD-NOS will instead be replaced by the new diagnosis label "Social Communication Disorder" (SCD); which consists of deficiencies in pragmatics that interfere with communication, social function, and learning, with onset in early childhood. An SCD diagnosis may lead evaluators to place an emphasis on communication deficits and less emphasis on social interaction deficits and developmental delays. Insurance coverage for an SCD diagnosis can be a potential burden to families because it would not be considered an autism diagnosis; thus, insurance may not cover therapy costs outside communication. (Grant & Nozyce, 2013).

The elimination of the Asperger's label has been met with controversy from individuals within the Asperger's community. Since the mass uptake of the term Asperger's in the late 1990s, numerous websites have been dedicated to Asperger's syndrome; with some of them becoming extremely successful. "Wrong Planet" is the leading voice of the online Asperger's community, a site boasting over 62,000 members in early 2012. Non-autistic individuals are

routinely referred to as neurotypical (NT) and those with Asperger's as "aspies". Members consistently voiced their concerns that without a diagnostic label they will be "at risk of going back to the days when we were thought of as rude, nervous, or incompetent...and be denied the services we need." One member voiced his concern of being forced to be included in mainstream society: "Soon enough, I'll be NT. Except I won't be NT. I'll be an NT who paces constantly, touching everything in my path. I'll be an NT who has meltdowns and can't socialize. I'll be an NT who doesn't qualify for services, has no excuse or reason for being odd, and is...well broken." (Giles, 2014, p.187) The Asperger's community has accepted their diagnosis as an essential part of their lives: "I know who and what I am, and the AS label is about as significant as my blood type." (p.187)

The screening tools and tests utilized are crucial in order to get a strong validity and reliability. What personnel administers the screenings and gives the final diagnosis is equally important; qualified personnel are expected to work as a cohesive unit to make a proper ASD diagnosis. The current study was conducted to shed light on developmental and ASD screening process.

Chapter 2: Literature Review

2.1 History

The initial use of the term autism was made by psychiatrist Leo Kanner in his seminal article which he published more than 50 years ago. In 1943, Kanner made the initial identification of autism based on a small sample of 11 children seen in his clinic who were initially identified with childhood schizophrenia. Many differences identified by Kanner as initial characteristics of autism still hold true today: social isolation, language impairments, and insistence on sameness. Though Kanner made superb initial strides in his identification of autism, there were some misconceptions of what the underlying causes of autism were. For example, parent characteristics of perfectionism, obsessiveness and lack of humor were thought to be causes of autism in children. Another misconception was that the majority of children with autism were of average or above-average intelligence. One last misconception of this initial ASD study was that autism was more likely to occur in the first born child or in only children (Kanner, 1943).

Despite any misconceptions about ASD, the positive ASD diagnosis of a child can have a devastating effect on the family of the child. In a recent study (Andreica-Sandica, Patca, Panaete & Andreica, 2011) on the effects of the impact of a positive diagnosis can have on a family, 20 parents were included in a study with at least one child with ASD. Fifty percent of the parents admit to feeling sadness, 40% of the parents reported that the diagnosis instilled worry, while three sets of parents experienced fury. Parents often experience a mourning process after a child is diagnosed with ASD. While the majority of the parents accepted the diagnosis, 25% of the parents experienced one of three emotions-anger, negation, or depression.

Even the time it takes for a positive diagnosis of ASD can be an additional cause for grief in confused parents. In a case study of three separate children who were all evaluated and eventually received the positive diagnosis of ASD, the average elapsed time from initial evaluation to final diagnosis was two years and four months (Cohen-Ophir, Castel-Deutsh & Tirosh, 2012).

The complexity of ASD and its symptoms can often lead to a diagnosis of mental retardation (MR) in addition to the ASD label (Ahmed & Mahmood, 2011). Attention deficit hyperactivity disorder (ADHD) is another diagnosis that is often attached to ASD due to the common symptoms of inhibitory control and deficits in theory of mind (Buhler, Bachmann, Goyert, Heinzl-Gutenbrunner, & Kamp-Becker, 2011). Primary Language Impairment, or PLI, is one subgroup of Specific Language Impairment (SLI) that shares the symptom of social language delay with ASD (Resinger, Cornish, & Fombonee, 2011). The confusion in diagnosis as to whether a child has ASD, MR, ADHD, PLI, or all four can delay proper diagnosis and targeted intervention for the child.

The relationship between diagnosis of ASD and parent report is crucial. The majority of mothers who reported their children had “a developmental delay or education program” were diagnosed as autistic or with PDD-NOS 76.9% of the time, while the remaining 23.9% were diagnosed as having a language disorder (Ponde & Rousseau, 2013).

Daniels and Mandell (2013) describe the American Academy of Pediatrics’ Well-Child Care guidelines and their importance for early diagnosis for ASD. To be considered in full compliance with the Well-Child Care guidelines, a child had to have one visit in their first month of life, four additional visits by 12 months, three visits from 12 to 24 months, one visit from 24

to 36 months, one from 36 to 48 months, and one from 48 to 60 months. Mean age at diagnosis was 37.4 months and compliance from birth to diagnosis was 55%. One inconsistent trend found during the study was that the highest compliance group had the lowest age at diagnosis and the lowest compliance group had the second lowest age at diagnosis. Children in the low compliance group represent a group that may have already been identified by the early intervention system (Daniels & Mandell, 2013).

A delay in diagnosis translates into missed opportunity to provide crucial services to improve the quality of life for the child. Age of diagnosis is critical for enrollment in intervention services as early in life as possible in order to capitalize on neuroplasticity. Increased community access to healthcare is associated with earlier age of initial diagnosis of ASD (Rosenberg, Landa, Law, Stuart, & Law, 2011). Children with an ASD diagnosis were found to attend school more often and were less likely to get into fights or display aggression than those in the undiagnosed comparison group (Russell et al., 2012).

Early identification of ASD is of the utmost importance and can affect the severity of the condition over time. Diagnosis of ASD in Africa resulted in confirmation of autism well above the age of 8; some extreme cases reported that patients did not have a doctor's visit until the age of 17. In addition, 51% of ASD cases in children Tunisia and 71% of ASD cases in children in Tanzania were non-verbal (Bakare & Munir, 2011). In a study conducted with individuals and focus groups with ASD, late diagnosis of ASD caused some individuals grief at the workplace and some avoided working altogether; others expressed they felt suicidal and spent many years hospitalized due to not being able to meet the expectations of those around them (Towson et al., 2007).

2.2 Summary & Purpose

The medical field has been perplexed with the issue of screening/diagnosing Autism Spectrum Disorder for nearly a century. With the idiosyncratic symptoms of each suspected case of ASD and the number of tests utilized in the process of screenings, a number of questions can be posed:

- Are developmental screenings performed with parental interviews or formal screening tools?
- How often is each ASD screening test used?
- At what age are children initially being screened for ASD?
- What medical personnel are completing the ASD screenings?
- What are the outcomes of a failed screening?

My hypothesis for the results of the surveys is that developmental screenings will include both parental interviews and formal screenings; each test will be used equally at all sites; children will be screened by 18 months; everyone but office staff will complete the surveys; and outcomes for a child suspected of having ASD will most often be referred to a developmental pediatrician.

To answer these questions, we surveyed pediatricians working in the west Texas county of El Paso.

Chapter 3: Method

3.1: Participants

Participants were 38 pediatrician offices in the county of El Paso, Texas. 142 pediatrician offices were contacted and the response rate was twenty-seven percent (38/142).

3.2: Materials

A twelve question survey was developed on surveymonkey.com in order to assess whether a developmental screen is completed with a parent interview or with a formal screening tool, which screening test is being utilized, at what age are children being screened for ASD for the first time, what personnel are involved in diagnosing ASD, and what occurs if a child is suspected of having ASD after the tests are administered. A sample of the survey is included in the Appendix. A pencil and paper survey was also utilized for offices that returned surveys via e-mail that contained errors, were incomplete, or did not returned the survey via e-mail.

3.3: Procedures

All procedures involved in this study were approved by the Institutional Review Board of the University of Texas-El Paso. A list of pediatricians within the El Paso County area was created in order to send out a survey and gather the required data for the study. Attempts were made to email pediatricians offices within the study area. Visits were also made to the offices of pediatricians that had returned incomplete surveys or had not responded to the emailed survey. A printed version of the survey was given to the secretary at each office for the pediatrician or staff to fill out; these surveys were picked up once they were completed. In all, 142 surveys were sent out and 49 were returned; which resulted in a 34.5% response rate. After removing

duplicate and incomplete surveys, 38 remained and were utilized for our study; resulting in a 26.7% response rate.

Chapter 4: Results

Data from the 38 surveys collected during the study revealed much about the trends of ASD screening and testing within the city of El Paso, Texas. Seventy-nine percent (30/38) of the surveys were filled out by pediatricians themselves, two percent (1/38) were filled out by physician's assistant, seven percent (3/38) were filled out by nurses, and eleven percent (4/38) of the surveys were filled out by office staff. Results from developmental screening methods are displayed in Table 1. Ninety-two percent (35/38) of the pediatrician's offices reported that they utilize a parent report/interview and formal screening tool to complete the developmental screening of the child in their practice, while five percent (2/38) of offices only utilize a parent report/interview, and two percent (1/38) reported that they only utilized a formal screening tool for developmental screening.

Results for ASD screening methods are displayed in Table 2. Autism screening for children included both a parent report/interview and a formal screening tool for ninety-five percent (36/38) of offices, while three percent (1/38) reported administering only a parent report/interview and three percent (1/38) reported utilizing only a formal screening tool.

Results from the administration of screening tools are displayed in Table 3. The MCHAT was administered at ninety-two percent of offices (35/38); followed by the ASQ which was administered at forty-five percent of offices (17/38), then the PEDS which was utilized at thirty-nine percent of offices (15/38), then ASQ-SE was reported being used at sixteen percent of offices (6/38), and finally, the PEDS:DM which was administered at eleven percent (4/38) of offices. The only other standardized test that was specified by the pediatrician offices surveyed was a questionnaire from the Autism Research Institute; which was used at three percent of

offices (1/38). One hundred percent (38/38) of offices surveyed reported that they are able to complete a developmental and/or autism screening by at least the child's 18th month.

Results of the personnel conducting developmental screens are displayed in Table 4. Of the 38 surveys collected, forty-five percent (17/38) of offices reported that the pediatrician conducted the developmental screenings at least 100-80% of the time, eighteen percent (7/38) of offices reported the pediatrician conducted screenings at least 50%-75% of the time, and thirty-seven percent (14/38) of offices reported the pediatrician conducted screenings less than 50% of the time; including eleven percent (4/38) of offices reporting that a pediatrician never conducted developmental screenings. The other personnel who implemented developmental screenings at least 50% of the time were the physician's assistant (three percent, or 1/38), a nurse (eleven percent, or 4/38), and other office staff (twenty-one percent, or 8/38).

Results of the personnel conducting ASD screens are displayed in Table 5. Forty-two percent (16/38) of offices reported that pediatricians conduct standardized screenings 100% of the time, eighteen percent (7/38) of offices reported that pediatricians conduct screenings at least 50%-75% of the time, twenty-six percent (10/38) of offices reported that pediatricians conduct screenings less than 50% of the time. The other personnel who implement standardized screenings at least 50% of the time were the physician's assistant (three percent, or 1/38), a nurse (eighteen percent, or 7/38), and other office staff (twenty-one percent, or 8/38); twenty-one percent (8/38) of offices reported that staff other than a pediatrician, a physician's assistant, or a nurse implement standardized screenings at least half of the time.

Results for ASD screen outcomes are displayed in Table 7. Failed screenings for ASD typically resulted in a referral to a developmental pediatrician (eighty-two percent, or 31/38) and

early childhood intervention (seventy-nine percent, or 30/38). The least amount of referrals went to a public school (thirteen percent, or 5/38), re-evaluating the child in a follow-up exam (eleven percent, or 4/38), and referring to a psychiatrist (eleven percent, or 4/38).

Twenty-one percent (8/38) of the pediatrician offices filled out the survey more than once; these surveys were inspected and a percentage was then created of matching responses from each of the eight offices. Results of the similarities of survey responses are displayed in Table 8.

Reliability ranged from 60% to 96% for the eight offices. The rate of variability in what the actual screenings consisted of was alarming; pediatrician office #1 reported using only the MCHAT in their screenings, but in their second survey they reported that they used all five of the tests for screening. Pediatrician office #2 reported using only a parent report/interview in their first survey response, but in the second survey they responded that they utilized both a parent report/interview and formal screening tools. There was also variability in what personnel actually conducts the screening of patients; pediatrician office #2 reported that a pediatrician conducted developmental screenings 100% of the time in their first survey, but that number dropped to 25% of the time in their second survey. Pediatrician office #4 reported that nurses never conducted developmental screenings in their first survey, but that number jumped to 60% in response to their second survey; the same pediatrician office had a similar modification from 0% to 60% in the percentage of nurses who conduct screenings for ASD.

There was consistency in typical outcomes for children suspected of having a developmental delay or ASD; however two offices displayed inconsistencies in their responses. Pediatrician office #5 reported four different types of referrals for children suspected of

developmental delays in their first survey, but in their second survey that number dropped to one referral type. Pediatrician office #1 reported six different referral types for children suspected of having ASD, but in their second survey that number dropped to one referral type.

Table 1

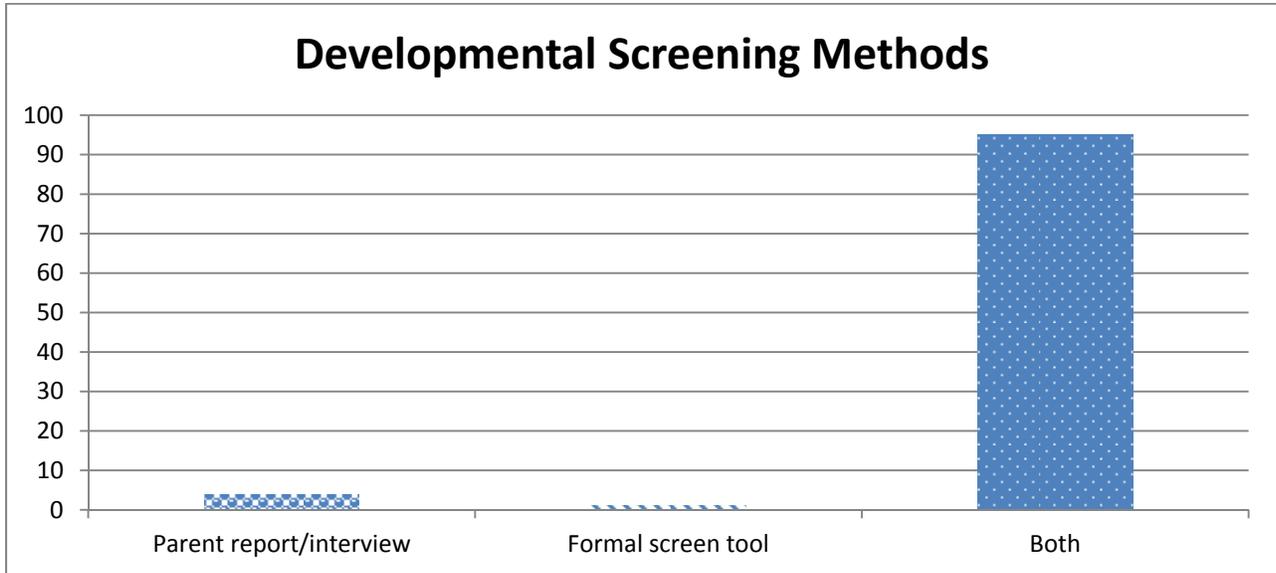


Table 2

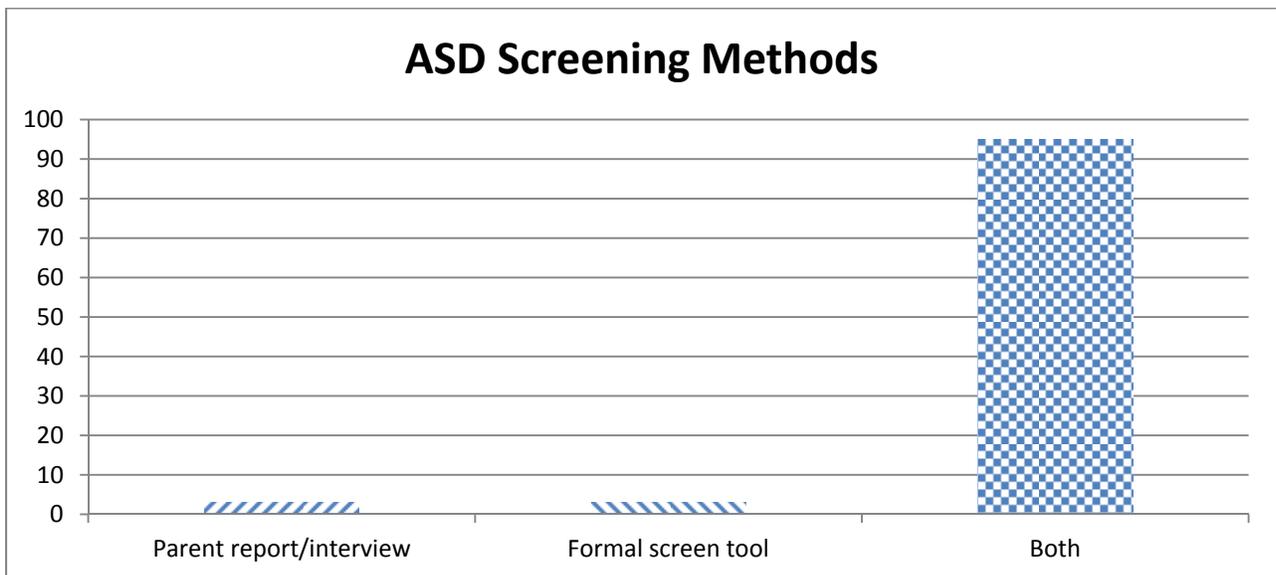


Table 3

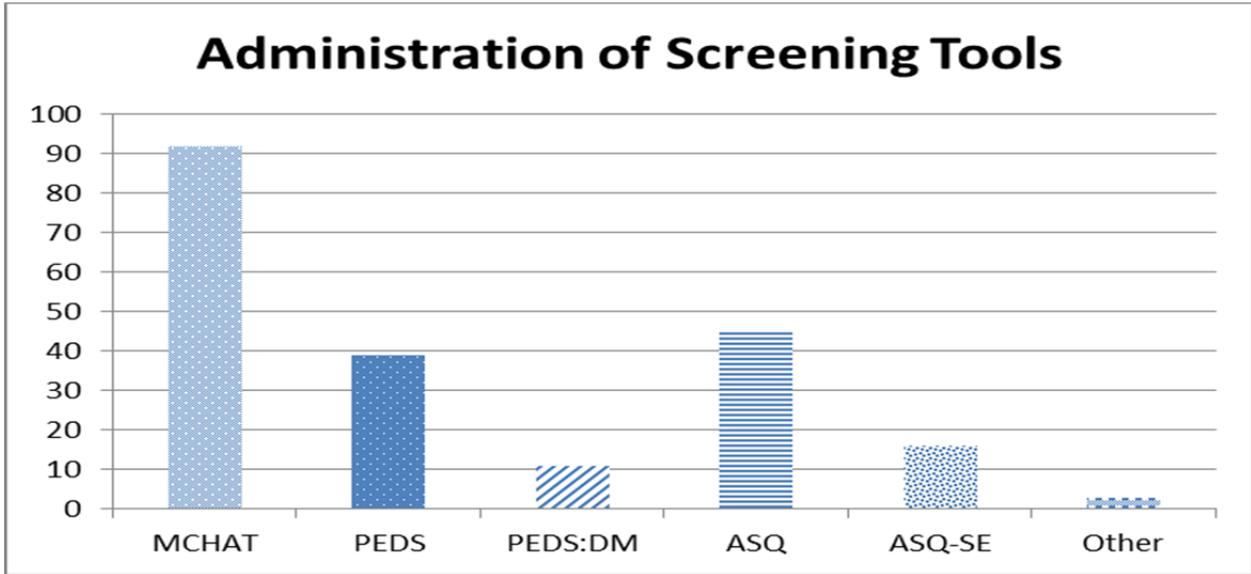


Table 4

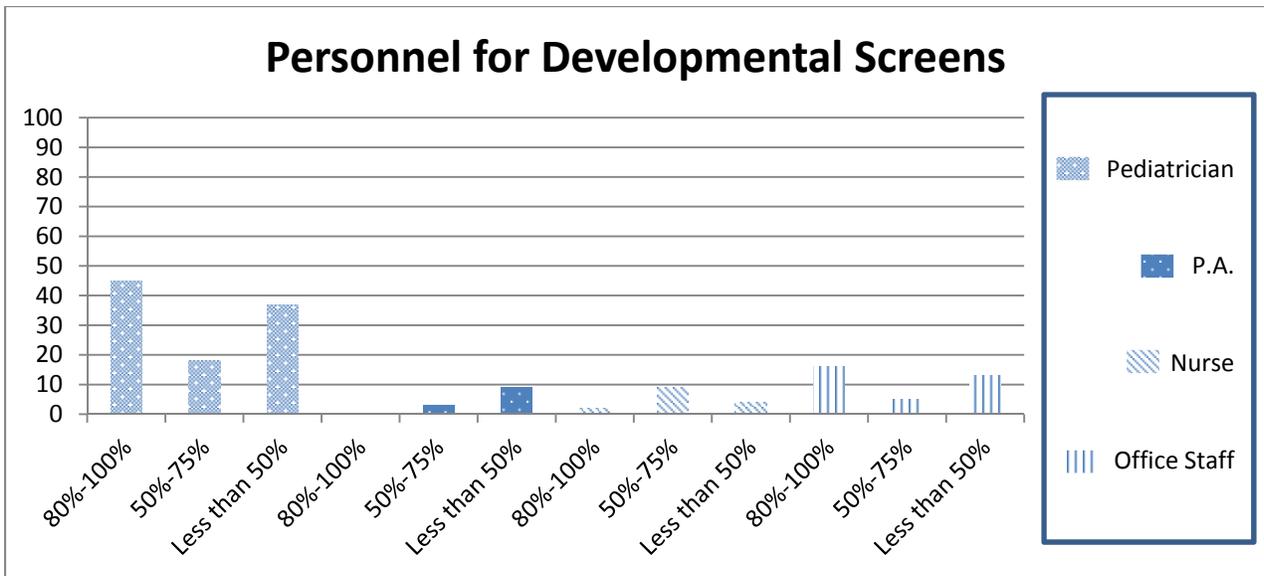


Table 5

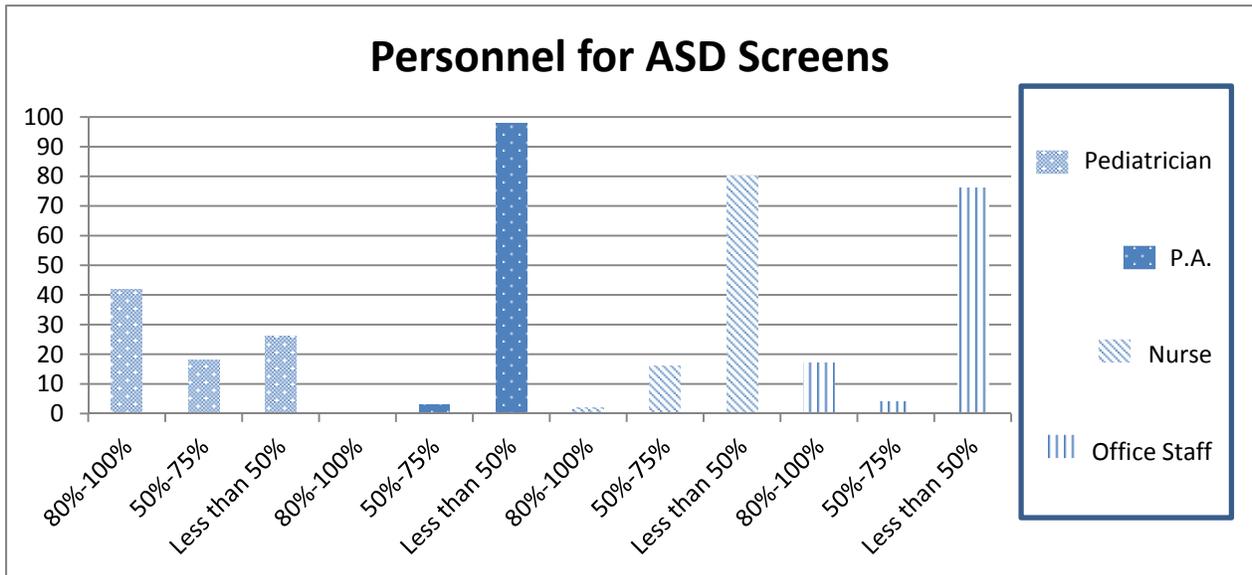


Table 6

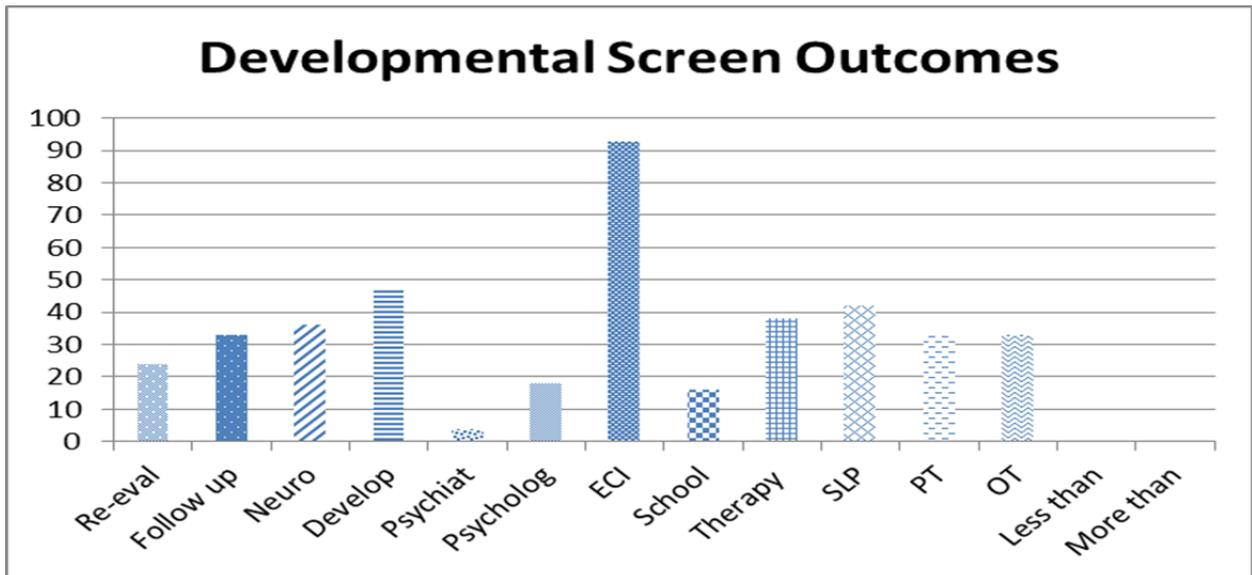


Table 7

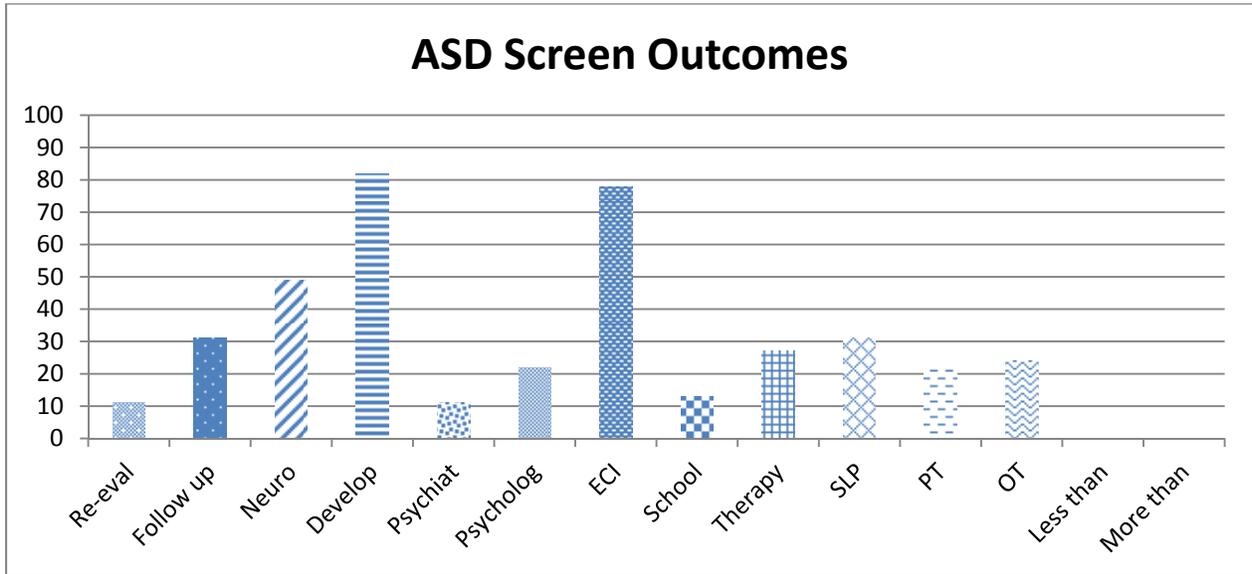
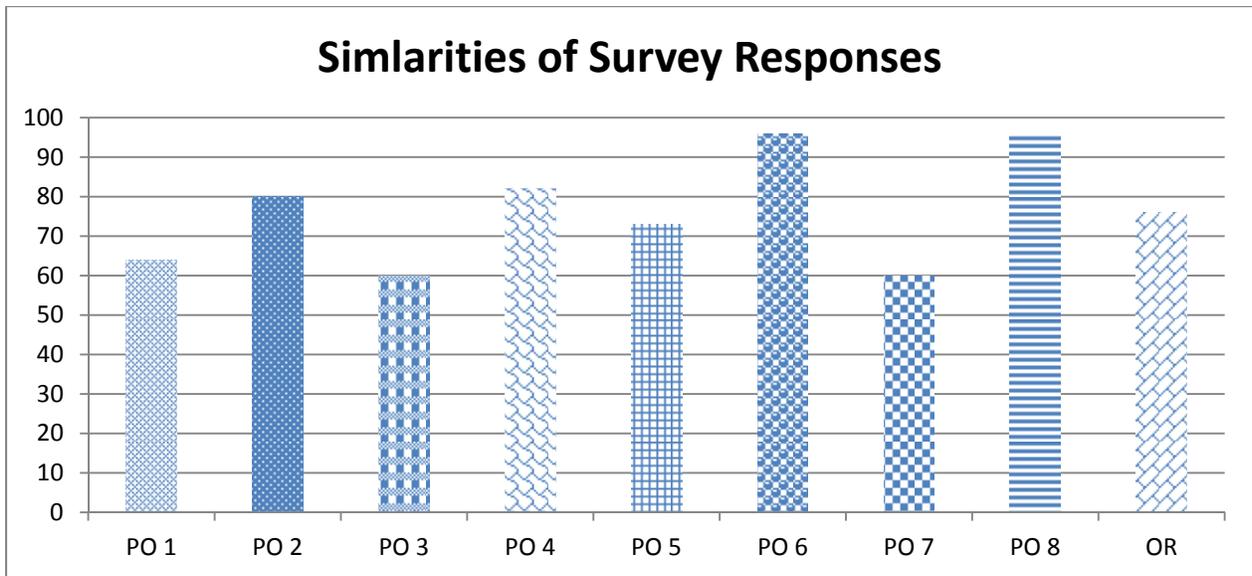


Table 8



Chapter 5: Discussion

5.1 Outcomes

The first question asked whether the developmental screenings were performed with parental interviews or with formal screenings. Results from the survey found that developmental screenings for ASD were performed with both a parental interviews and formal screening tools 93% of the time. The second question was seeking to find how often each ASD screening was implemented. The MCHAT was the most widely utilized assessment (ninety-two, or 35/38, of offices reported using this test). The third question inquired at what age children are initially screened for ASD. Results from the survey reported one hundred (38/38) of pediatrician offices screen children for ASD by 18 months. The fourth question sought to identify what medical personnel conducted ASD screenings. Office staff conducted at least twenty-one percent (8/38) of screenings the time at half of the offices surveyed; pediatrician's conducted sixty percent (23/38) ASD screenings, nurses conducted eighteen percent (7/38) of ASD screenings, while physician's assistants conducted only three percent (1/38) of ASD screenings. The final question asked what the outcomes were for failed screenings. Ninety percent (34/38) of offices referred the client to Early Childhood Intervention.

5.2 Implications for El Paso County

Overall results from the survey indicate that screenings for ASD are being consistently conducted by pediatrician offices within El Paso County. All pediatrician offices reported that they were able to conduct a developmental and/or ASD screenings by the child's 18th month; the child's age for ASD screening is critical due to the average time it takes to make a positive ASD

diagnosis (2 years and 4 months) and the importance of intervention for children found to have a developmental delay and/or ASD (Cohen-Ophir, Castel-Deutsh & Tirosh, 2012). In addition, no survey came back with offices reporting confusion as to what should with children over/under 36 months of age who may have a developmental delay and/or ASD. Though the responses varied, referrals for children suspected of having a developmental delay and/or ASD provided evidence that the children are getting the assistance they need. Despite the fact that a quarter of El Paso County residents were living below the federal poverty level, data from this study provides evidence that proper developmental and ASD screenings are being performed consistently for children within the county (Resendes & Ocaranza, 2013).

Results of this study differ from results found in a similar study conducted in California concerning general developmental screenings and ASD screenings of Latino children. The most frequently mentioned barrier to adequate ASD diagnosis in California was the limited access to ASD or developmental specialists when a screen suggested a child displayed signs of autism (Zukerman et al., 2013).

5.3 Future Studies

With only twenty-seven percent (38/142) of the original pediatricians responding to the survey, the small sample developed for this study may not be a full representation of ASD screening procedures within the El Paso County area of Texas. A replication of this study could be conducted including a larger sample size of pediatricians from the El Paso and West Texas area by taking more time to inform pediatricians of the research being conducted as well as making sure the offices filling out the survey are able to fill out the survey correctly. Due to the proximity of El Paso County to the state of New Mexico, a future study could be conducted in

Dona Ana County in order to compare data from two different counties and states that are adjacent. Studies for developmental and ASD screenings should also be conducted in the Midwestern United States due to a recent study that reported Mexican immigrants comprised the largest foreign-born population within that region (Paral, 2009).

5.4 Clinical Implications

Results from this study have important clinical implications for El Paso County. First, pediatricians within El Paso County reported that they are consistently conducting developmental screenings and ASD screenings with their patients; screenings are essential to provide adequate evidence for pediatricians to make proper referrals for any suspected developmental delays or ASD suspicions. Second, children are benefitting from thorough developmental and ASD screenings; which are crucial to the differential diagnosis procedure of an accurate autism diagnosis (Buhler, Bachmann, Goyert, Heinzl-Gutenbrunner, & Kamp-Becker, 2011). Third, parents within El Paso County who have developmental concerns about their children can make pediatrician appointments with more confidence knowing that the appropriate screenings are being conducted. Fourth, Speech-Language Pathologists can benefit from patient referrals that contain information from in-depth screenings. Additional information for patients can help to customize therapy and target areas in need of rehabilitation.

5.5 Future Diagnostic Team Implications

The outcomes of failed screenings most often result in the recommendation for the child to a developmental pediatrician; which can further confirm or refute any suspected autism diagnosis. Further investigation of what the collaborative team for ASD diagnosis consists of when comparing the developmental pediatrician's diagnostic team, the early childhood

intervention's diagnostic team, and the neurologists' diagnostic team. The professionals that make up each team can provide a better picture of what is needed to make a positive diagnosis of ASD not only within the El Paso area, but throughout the entire medical community.

Clinical implications for this survey signify the importance of the age at first screening for the child suspected of having ASD and the changes in the DSM-V. Children with mild levels of ASD will no longer receive the Asperger's or PDD-NOS diagnosis, but will now be diagnosed with "Social Communication Disorder". This new diagnostic label may restrict the child's eligibility for IDEA programs and limit the scope of services available for the child with "Social Communication Disorder" due to its focus on language pragmatics in the DSM-V. This may negatively affect younger children who meet the current PDD-NOS criteria as these children may require more intensive and multi-disciplinary services than a communication domain diagnosis would warrant. Intensive behavioral interventions, inclusive behavioral interventions, inclusive group setting placements, and family support services are typically more available for children with an autism spectrum disorder than with diagnoses reflecting speech-language delay (Grant & Nozyce, 2013).

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Appendix

Sample survey provided for pediatricians' participating in the study

Autism Spectrum Disorder Pediatrician Survey
1. Pediatrician/clinic name?
2. Name of person completing this survey?
3. How do you complete the <u>developmental screening</u> of your patients? <ul style="list-style-type: none">• Parent report/interview ONLY• Formal screening tool ONLY• BOTH parent interview and formal screening tool
4. How do you complete the <u>autism screenings</u> of your patients? <ul style="list-style-type: none">• Parent report/interview ONLY• Formal screening tool ONLY• BOTH parent interview and formal screening tool
5. In your practice, which of the following screening tools do you use when completing <u>autism</u> and <u>developmental screenings</u> of your patients? (check all that apply): <ul style="list-style-type: none">• MCHAT• PEDS• ASQ• ASQ-SE• Other (please specify)
6. In your practice, are you able to complete a developmental and or autism screening by at least the child's 18 th month?

- Yes
- No

7. If no, what are barriers you know or suspect that hinder this process?

8. In the past year, how often did each of the following personnel complete the **developmental screenings**?

- Pediatrician
- Physician's assistant
- Nurse
- Other Office Staff

9. In the past year, how often did each of the following personnel complete the **autism screenings**?

- Pediatrician
- Physician's assistant
- Nurse
- Other Office Staff

10. What is the typical outcome in your practice if a screening was suspect for a **developmental delay**? (Check all that apply)

- Wait to re-evaluate at the child's next scheduled exam
- Schedule a follow up with our office
- Refer to a Neurologist
- Refer to Developmental Pediatrician
- Refer to Psychiatrist

- Refer to Psychologist
- Refer to Early Childhood Intervention
- Refer to Public School
- Refer to a Private Therapy Agency
- Refer to a Private Speech Language Pathologist Provider
- Refer to a Private Physical Therapy Provider
- Refer to a Private Occupational Therapy Provider
- I don't know where to refer a child less than 36 months of age
- I don't know where to refer a child over 36 months of age

11. What is the typical outcome in your practice if the screening was suspect for an

autism spectrum disorder? (Check all that apply)

- Wait to re-evaluate at the child's next scheduled exam
- Schedule a follow up with our office
- Refer to a Neurologist
- Refer to Developmental Neurologist
- Refer to a Psychiatrist
- Refer to a Psychologist
- Refer to Early Childhood Intervention
- Refer to Public School
- Refer to a Private Therapy Agency
- Refer to a Private Speech Language Pathology Provider
- Refer to a Private Physical Therapy Provider

- Refer to a Private Occupational Therapy Provider
- I don't know where to refer a child under 36 months of age
- I don't know where to refer a child over 36 months of age

12. Would you like a report of our findings?

Vita

Julian Thomas Murillo was born in El Paso, Texas, on 04 September 1984, the son of Javier and Yolanda Murillo. After graduating from Burges High School in 2003, he decided to study at El Paso Community College where he earned his Associate of Arts Degree in December 2005. In spring of 2006, he enrolled at the University of Texas at El Paso and in May of 2009 he graduated with a Bachelor's Degree in Theatre Arts with a Minor in Education. After finding work with the Socorro School District, Julian decided to re-enroll at the University of Texas at El Paso where he began taking classes required for acceptance into the Speech Language Pathology program. In fall of 2012, he was admitted into the Graduate School at the University of Texas at El Paso.

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This thesis was typed by Julian Thomas Murillo.