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A Regional Comparison of Intellectual Disability Rates in Appalachia

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A REGIONAL COMPARISON OF INTELLECTUAL DISABILITY RATES IN APPALACHIA

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ABSTRACT

This study examined administrative prevalence rates of Intellectual Disability for children and adolescents within Southern West Virginia over a three-year-period compared to rates in neighboring Virginia counties with designated Appalachian status to determine if significantly different rates were evident, and if prevalence varied according to poverty, maternal age, and race/ethnicity across all districts. The results revealed that despite Southern West Virginia and Western Virginia being geographically similar, Southern West Virginia LEAs maintain significantly higher ID rates. Findings indicated poverty and teen pregnancy are correlated with higher ID rates but not race/ethnicity. The prevalence study points to the need for additional research including direct examination of identification practices in Appalachia, school psychologist-to-student ratios in high ID areas, and the disparities between state categories and identification of secondary disabilities, which aren't reported through annual child counts.

Chapter 1:

Literature Review

A Regional Comparison of Intellectual Disability Rates In Appalachia

School psychologists have traditionally played a "gatekeeper" role, assessing and ultimately identifying students who meet eligibility requirements for special education services (Merrell, Ervin, & Gimpel, 2006). Although this role has been widely criticized, school psychologists continue to allocate a considerable portion of time to special education evaluations (Castillo, Curtis, Chappel & Cunningham, 2010; Sheltraw, 2013). The present study examines administrative prevalence rates, one indicator of the "gate keeper" role. The setting of interest is Southern West Virginia, a region in a state with historically high prevalence rates for children and adolescents with intellectual disabilities (ID) (Stephens, 2015). Administrative prevalence rates of ID for children and adolescents within Southern West Virginia over a three-year-period will be compared to rates in neighboring Virginia counties with designated Appalachian status to determine if significantly different rates are evident, and if prevalence varies according to poverty, race/ethnicity, maternal age, etc. across all districts. Administrative prevalence rates are those rates that are part of larger databases and are reported annually (World Health Organization, 2007).

Definition of an Intellectual Disability

An intellectual disability, as defined by the Individuals with Disabilities Education Act of 2004 (IDEA), is "significantly sub average general intellectual functioning, existing concurrently with deficits in adaptive behavior and manifested during the developmental period that adversely affects a child's educational performance" (2006, p. 46756). The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) similarly defines an intellectual

disability as "deficits in general mental abilities and impairment in everyday adaptive functioning" (American Psychiatric Association, 2013, p. 37) The DSM-5 additionally requires the presence of symptoms during the developmental period. Both definitions, IDEA 2004 and DSM-5, cover the criteria for an intellectual disability with the DSM-5 being more specific as to how adaptive functioning should be considered. State definitions for ID are outline below.

West Virginia Definition of ID

The definition of ID and criteria as set forth under the West Virginia Board of Education Policy 2419: *Regulations for the Education of Students with Exceptionalities* (WVBE Policy 2419) are as follows for the years of interest (i.e., school years 2011-2012 through 2013-2014):

Documentation that the student meets all of the following:

General intellectual functioning:

a) *Ranging from two or more standard deviations below the mean, in consideration of 1.0 standard error of measurement as determined by a qualified psychologist, using an individually administered intelligence test; and*
b) *The student exhibits concurrent deficits in adaptive functioning expected for his or her age in at least two of the following areas: communication, self-care, home living, social/interpersonal skills, use of community resources, self-direction, functional academic skills, work, leisure, health, or safety; and*
c) *The age of onset is 18 or below; and*
d) *The student's condition adversely affects educational performance; and*
e) *The student needs special education (p.28)*

It is important to note from 2012 through 2013 the term Intellectually Disability (ID) replaced the term Mental Impairment (MI). However, the underlying definition itself remained consistent for years of interest in the analysis.

Virginia Definition of ID

The term used prior to 2010 in Virginia was Mental Retardation. The term intellectual disability covers the same population of students who were identified previously with mental retardation. This new change in terminology does not affect the continued need for individualized supports and services. In Virginia, the definition of intellectual disability as defined by the Regulations Governing Special Education Programs for Children with Disabilities in Virginia (2010) is:

> *"Intellectual disability" means the definition formerly known as "mental retardation" and means significantly sub average general intellectual functioning, existing concurrently with deficits in adaptive behavior and manifested during the developmental period that adversely affects a child's educational performance (8VAC20-81-10) (p.6).*
>
> *To be found eligible as a child with an intellectual disability. The eligibility group may determine that a child has an intellectual disability if the following exists:*
>
> *1. The definition of "intellectual disability" as stated above is met in accordance with 8VAC20-81-10;*
>
> *2. There is an adverse effect on the child's educational performance due to one or more documented characteristics of an intellectual disability, as outlined in subdivision 3 of this subsection; and*

3. *The child has:*

a. Significantly impaired intellectual functioning, which is two or more standard deviations below the mean, with consideration given to the standard error of measurement for the assessment, on an individually administered, standardized measure of intellectual functioning;

b. Concurrently, significantly impaired adaptive behavior as determined by a composite score on an individual standardized instrument of adaptive behavior that measures two standard deviations or more below the mean; and

c. Developmental history that indicates significant impairment in intellectual functioning and a current demonstration of significant impairment is present (p. 31)

While adaptive functioning is required for both a school based classification (IDEA, 2004) or a clinical diagnosis (DSM-5) of ID, research on the impact of adaptive assessment has produced mix results. Obi et al. (2011) evaluated identification rates of ID wherein adaptive functioning was or was not incorporated in the decision making process. The children were identified by Metropolitan Atlanta Developmental Disabilities Surveillance Program (MADDSP) (Obi et. al, 2011). MADDSP is a monitoring system for intellectual disability, cerebral palsy, hearing loss, vision impairment, and autism spectrum disorders in the five-county, metropolitan Atlanta area (Obi et. al, 2011). Their findings show intellectual ability or intelligence quotient (IQ) data alone could positively skew the prevalence rate of ID. More specifically, Obi et al. (2011) found a 12 percent decline in prevalence when the adaptive assessment was incorporated in eligibility decisions. However, the authors ultimately determined that much of the 12 percent reduction was attributed to the large number (9%) of cases missing adaptive scores. The

researchers concluded that since the decline was due to missing data and not adaptive functioning scores being greater than 70 then IQ measures alone could appropriately be used to identify ID. Other previous studies, conversely, demonstrated adaptive assessment effectively reduces the overall prevalence rates of ID (Hansen, Belmont & Stein, 1980; Childs, 1982; Mascari & Forgnone, 1982).

Researchers have explored the differences between individuals with ID diagnosis based on IQ and adaptive behavior functioning to determine the significance of incorporating adaptive functioning as part of the process (Soenen, Van Berckelaer-Onnes, & Scholte, 2009). When they used adaptive functioning age equivalents and IQ scores they had four clusters of individuals who fit the ID definition; however, the adaptive functioning gave more insight into the daily living activities participants were capable of performing with their IQ (Soenen,Van Berckelaer-Onnes, & Scholte, 2009). Cluster one consisted of individuals with a mean IQ of 74, an average adaptive developmental age of seven years and six months, and higher levels of disruptive behavior and manipulative behavior. The diagnoses of individuals in this cluster consisted of Reactive Attachment Disorder, Borderline Personality Disorder, and Pervasive Developmental Disorder. Cluster two consisted of individuals with a mean IQ of 61, an average adaptive developmental age of five years and four months, and were those individual who generally liked routines, resisted change, and exhibited abnormal reactions to sensory stimuli. Cluster three was comprised of individuals with a mean IQ of 75, an average adaptive developmental age of seven years and seven months, and these individuals demonstrated immature behavior and depressive and/or anxiety symptoms. Cluster four was comprised of individuals with a mean IQ of 58, an average adaptive developmental age of three years and six months, and generally represented by individuals with Pervasive Developmental Disorder, Attention Deficit/Hyperactivity Disorder

and high levels of sensory abnormalities. This study lends knowledge about behavioral characteristics in relation to IQ to determine the support that individuals with an intellectual disability actually need. IQ alone is not sufficient in determining what type of support individuals need (Soenen, Van Berckelaer-Onnes, & Scholte, 2009).

Prevalence and Status Variables

According to the DSM-5, the overall prevalence rate of intellectual disabilities in the general population is 1% (APA, 2013). However, researchers have identified several status variables which impact prevalence rates. These variables include poverty, race/ethnicity, metropolitan status, and maternal age. Each variable is relevant to the Appalachian school districts under investigation in this study. For example, West Virginia has the highest percentage (i.e., 10%) of children living in low income households where no adults work (Kids Count, 2013). West Virginia additionally has the fifth highest rate of total teen births nationally with 44 per 1000 (Kids Count, 2012). A more comprehensive discussion of risk factors associated with Appalachian populations will be detailed in the "Appalachian Status" section below.

Poverty

Emerson and Hatton (2007) found people with intellectual disabilities in the world's richer countries are at significantly greater risk of living in poverty than their nondisabled peers. Supporting a child with an intellectual disability can be costly and may partially explain why lower income or poverty is correlated with the prevalence rate (Emerson & Hatton, 2007). However, poverty also increases the risk for pre-term or low birth weight births which has been linked to intellectual disabilities (Emerson & Hatton, 2007). Emerson and Hatton (2007) additionally explored the following risk factors related to poverty: the increased risk of accidents,

environmental hazards, infections, less than optimal parenting, poorer schooling, and a range of adverse life events.

Other researchers have investigated differences among developing nations and their wealthier counterparts. Bergan, for example, examined differences in prevalence among individuals with severe intellectual disabilities and found individuals in developing countries have a disproportionately higher risk of having severe intellectual disabilities than individuals in wealthier nations (2008). Other researchers, however, have found the prevalence of severe intellectual disabilities is less impacted by low socioeconomic status, as compared to mild intellectual disabilities (Islam, Durkin, & Zaman, 1993).

Boyle et al. (2011) examined prevalence of developmental disabilities in children from 1997-2008. They found nearly twofold higher prevalence rates among children insured by Medicaid, a health insurance program for families of low-income, as compared to private insurance. This pattern was statistically significant for ADHD, learning disabilities, intellectual disabilities, seizures, stuttering or stammering, and other developmental delays. Also, family incomes below the federal poverty level were correlated with a higher prevalence of learning disabilities, intellectual disabilities, stuttering or stammering, and other developmental delays.

Race/Ethnicity

In addition to income level, race has been correlated with ID. Oswald, Coutinho, Best, and Nguyen (2001) studied the prevalence of intellectual disability between race/ethnicities. They found White males were more likely to be identified as having an intellectual disability than White females. Black females were twice as likely to be identified; however, Black males demonstrated the highest risk of being identified with ID. Oswald et al.'s finding correlated well with other studies which have documented the historic disproportionate representation of

minorities in special education, particularly in the intellectual disability category (Skiba et al., 2008). Poverty was also correlated with each gender/ethnicity group which indicated that Black males and females also are at greatest risk for poverty which has also been a risk factor for intellectual disabilities (Oswald et al., 2001). Obi et.al (2011) also found that being a Black non-Hispanic male was a strong predictor of intellectual disability when conducting their study on adaptive behavior.

Zhang, Katsiyannis, Ju, and Robert (2014) found similar results when conducting their disproportionality study over a 10 year period where African Americans were the highest in rates of receiving special education services; however, the percentage did decrease over the 10 year period. The Hispanic population of children with an intellectual disability decreased over the same 10 year period but the percentage increased for specific learning disabilities. They also found that Hispanic representation in poorer states had lower rates than wealthier counterparts and the poorer states had a decreased rate (Zhang et. al, 2014).

Rural and Urban Status

Brault (2011) examined school-aged children with disabilities in metropolitan areas across the United States and compared them to non-metropolitan areas. Over half of Brault's sample consisted of children with cognitive disabilities. He found that 5.0 percent of children living inside metropolitan areas compared to 6.3 percent outside of metropolitan areas had a disability in the United States. Cognitive deficits were found in 3.8 percent of metropolitan students and 4.8 percent of non-metropolitan. Brault's findings revealed significantly higher rates of disability in the non-metropolitan areas in Alabama, Arizona, California, Florida, Georgia, Illinois, Maine, Missouri, New Mexico, New York, North Carolina, Pennsylvania, Tennessee, and Vermont, whereas Wisconsin and Nebraska were the only two states with

significantly more children with disabilities residing in the metropolitan areas (Brault, 2011). Though not significant, Virginia had 4.3 percent within the metropolitan area and 5.0 percent in non–metropolitan areas and West Virginia actually had more in metropolitan areas (i.e., 7.8 percent) than in non-metropolitan areas (6.9 percent) (Brault, 2011). Similarly, Xie et. al (2008) found the same to be true in China when researching intellectual disability in children between birth to six years old. Xie et. al (2008) surveyed 60,124 children ages birth through six years old and 560 of them were diagnosed with an intellectual disability. Those with an intellectual disability living in rural areas had higher rates than those living in urban areas. Xie et. al (2008) additionally found the highest rate of intellectual disabilities occurred in moderately developed areas more than in fully developed or underdeveloped areas in China.

Maternal Age

Several researchers have studied maternal age as a risk factor for intellectual disabilities. Williams and Decoulfe (1999) assessed maternal age along with educational level and compared the prevalence of childhood intellectual disabilities. The researchers divided the cases into two groups: isolated and co-developmental intellectual disabilities. The term co-developmental intellectual disability is defined by the researchers as cases of mental retardation accompanied by one or more of the other four developmental disabilities included in the Metropolitan Atlanta Developmental Disabilities Study (MADDS) or by a Central Nervous System (CNS) birth defect such as "Downsyndrome", microcephaly, hydrocephaly, and spina bifida. Those cases not known to be associated with any of the other four developmental disabilities or with a CNS birth defect were defined as cases of isolated retardation. For the group of children with isolated intellectual disabilities, Williams and Decoulfe (1999) found the mothers had a much lower than average educational level. Also the children of mothers 35 years old or older were at a higher

risk for co-developmental intellectual disabilities than other age groups (Williams & Decoulfe, 1999).

Chapman, Scott, and Mason (2002) examined the role of maternal age and education as an early risk factor for ID. They evaluated two groups of students with disabilities: those who had educable and trainable levels of intellectual disabilities. Chapman et al. (2002) found the age groups with the greatest risk for having children with ID were the younger mothers (less than 25 years old) and older mothers (35 years old or older) (Chapman et al., 2002). The highest individual risk was found for 15- to-19 year-olds (Chapman et al., 2002). When including the education level it appeared that the younger mothers with less than 12 years of education were at the highest risk for educable levels of ID, whereas older mothers were at risk for trainable levels of ID regardless of the education level. However, older mothers with less than 12 years of education were at a higher risk category than any other age group (Chapman et al., 2002). The younger mothers with less than 12 years of education still accounted for the greatest proportion of children with trainable levels of ID in the population (Chapman et al., 2002).

Appalachian Status

The Appalachian Region as defined by the Appalachian Regional Commission is "205,000-square-miles that follow the spine of the Appalachian Mountains from southern New York to northern Mississippi" (www.arc.gov). It includes all of West Virginia and parts of 12 other states: Alabama, Georgia, Kentucky, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, and Virginia" (www.arc.gov).

Appalachia is a region steeped in poverty, with a variety of chronic stressors. Post et al. (2013) researched the factors that lead to depression amongst women in Appalachian Ohio. Post et al. discovered the participants from Appalachian Ohio were younger, less educated, less likely

to be employed, poorer, more likely to be married, and experienced heightened levels of social isolation (fewer close contacts and less social cohesion). Moreover, they were more likely to smoke, experience higher levels of stress, anxiety, and discrimination, as well as have a higher score suggestive of depression. These are some of the same factors that have been identified as placing mothers at risk for having a child with an intellectual disability.

Additionally, children and adolescents in Appalachian West Virginia are at greater risk for being identified as intellectually disabled. When examining United States Department of Education data for 2007, Polloway et al. (2010) found West Virginia disability rates were the highest in the nation at 2.47 percent. West Virginia was one of 13 states with intellectual disability rates exceeding 1.2 percent. The state with the second highest rate of ID was Wyoming at 2.25 percent. In 2015, Stephens (2015) examined West Virginia's ID rates in more depth. She similarly found the administrative prevalence rates in West Virginia were disproportionately higher than the national average, despite demonstrating overall declines from 2004 to 2013.

Stephens's (2015) primary research interest, however, was in the variation among local education agencies (LEA) and between regional education service agencies (RESA) within the state. Her results revealed West Virginia's LEAs with the lowest prevalence rates were near the national average at 1.1 and 1.2 percent respectively in 2013. Some LEAs with lower rates were located in West Virginia's eastern panhandle. This area of West Virginia borders Northern Virginia and Maryland and generally has a different economic infrastructure, though still in Appalachia. The district with the highest prevalence rate for the entire 10 year period ranged from 5.9 percent in 2011 to 6.8 percent in 2005. Three other districts in Southern West Virginia had ID rates in excess of 4.0 percent during 2013. Statistically significant differences were frequently found by region with RESA I (i.e. the southernmost counties) and RESA VIII (i.e. the

eastern panhandle) varying the most significantly. West Virginia's rates vary across the state even though the whole state is part of the Appalachian region.

Appalachian Economy

The Appalachian economy is another variable to consider due to the distress in the region. Appalachian residents are more likely than other U.S. residents to be low SES and experience high unemployment, negligible income associated with lower-paying jobs, and substandard education (Appalachia Regional Commission, 2008). Appalachia is a rural region therefore high paying companies typically do not reside therein and the largest industry, although waning, is coal. The coal industry in 2009 employed more than 50,000 individuals in the Appalachian underground coal mining industry (McLaren & Rutland, 2013). With the coal industry there is illness and injury which results in disability or time off work, placing stress on the family. Families of the coal workers are under extremely stressful situations due to the high rate of fatal injuries in the mines which could lead to depression. The coal mining communities also experience poorer physical and mental health (McLearn & Rutland, 2013). The Appalachian region has the highest rates of heart disease, lung disease, and chronic pulmonary disease (McLearn & Rutland, 2013).

The other industries that lie within the Appalachian region of West Virginia and Virginia that employ residents of the Appalachian region are retail trade, professional and technical services, education services, transportation (railroad), and lodging/entertainment (Appalachian Regional Commission, 2014). However, despite industry within the region many counties of Appalachia are depressed economically. The Appalachian Regional Commission ranks the counties by economic status under one of the five categories: Distressed, At-Risk, Transitional, Competitive, or Attainment. The economic levels range from Distressed to Attainment.

Distressed counties are those that are the most economically depressed, ranking within the lowest ten percent of the nation's counties (Appalachian Regional Commission, 2015). An At-Risk county is one presenting a significant risk of becoming depressed and ranks between the lowest ten to 25 percent of the nation's counties. Transitional counties are those falling within the second and third quartiles. A Competitive status is assigned to counties that are able to compete in the national economy but are not yet in the highest ten percent of the nation's counties. Counties in the top ten percent are designated with an Attainment status (Appalachian Regional Commission, 2015).

Need for Study

West Virginia LEAs were chosen as the primary unit of analysis for this investigation for several reasons. First, West Virginia itself is the only state that lies entirely within Appalachia. This allows for comparison among other LEAs with designated Appalachian status in other states because the Appalachian region is known as having historically greater economic difficulties as a whole (Santopietro, 2002). Secondly in West Virginia, the identification rate of children is substantially above the national average overall and thus more research is need to see if comparable rates exist among other regional areas (Myadze, 2006).

Third and finally, as delineated in Stephens' (2015) research, the counties in Southern West Virginia contributed substantially to the high rates of ID in Appalachia West Virginia. Specifically, three of the four counties maintaining the highest prevalence of ID for children and adolescents border the Virginia counties. Given the overall disparity of rates of West Virginia regions it is important to determine if high rates of ID are only found in Southern West Virginia or extend beyond the border into the Virginia Appalachian region. The counties in Southern West Virginia which contributed to the high rate of ID in 2013 were McDowell, Wyoming,

Monroe, Wayne, Summers, Mercer, and Lincoln (Stephens, 2015). Furthermore, this study will examine if district prevalence rates are similarly or differentially impacted by status variables such as low SES, maternal age, race/ethnicity, etc.

Southern West Virginia districts were compared to the LEAs in Appalachian Virginia. The Virginia Appalachian LEAs were chosen due to being geographically similar to Southern West Virginia. Also, Virginia and West Virginia share common history. West Virginia is the only state in the nation formed from an existing state. When West Virginia's borders were set, the specific boundaries were determined based on the counties that existed and those who opposed slavery. The counties of McDowell, Mercer, Monroe, and Greenbrier were chosen to be part of the new state because they had no facilities or land for commercial businesses (Grymes, 2013). Topography was not used in determining the borders which meant that the mountains and land were still the same in some counties bordering West Virginia (Grymes, 2013). Aside from geography, another reason Virginia was chosen was due to the LEAs being laid out similarly to West Virginia the only difference being Virginia has some city LEAs as well as county LEAs. Lastly, the data for Virginia were readily available to be analyzed. The research hypotheses are as follows:

1. Based on the geographical similarities between West Virginia and Virginia, there will be no significant differences between prevalence rates in the Southern West Virginia and LEAs in Appalachian Virginia.

2. Consistent with prior research, LEAs with higher poverty will have higher ID prevalence rates.

3. Consistent with prior research, LEAs with younger maternal birth rates will have higher ID prevalence rates.

4. Consistent with the disproportionality research, counties with higher minority rates will have higher ID prevalence rates.

CHAPTER 2:

METHOD

Sample Participants

The study sample consisted of 22 local education agencies (LEAs) in Southern West Virginia and 33 LEAs in the Appalachian region of Western Virginia. In the case of West Virginia, all LEAs in RESA I, II, III, and IV will be included in the study (See Figure 1). The counties included by RESA are as follows: 1) RESA I: McDowell, Mercer, Monroe, Raleigh, Summers, and Wyoming; 2) RESA II: Cabell, Lincoln, Logan, Mason, Mingo, and Wayne; 3) RESA III: Boone, Clay, Kanawha, and Putnam; and 4) RESA IV: Braxton, Fayette, Greenbrier, Nicholas, Pocahontas, and Webster. In the case of West Virginia each county is one LEA.

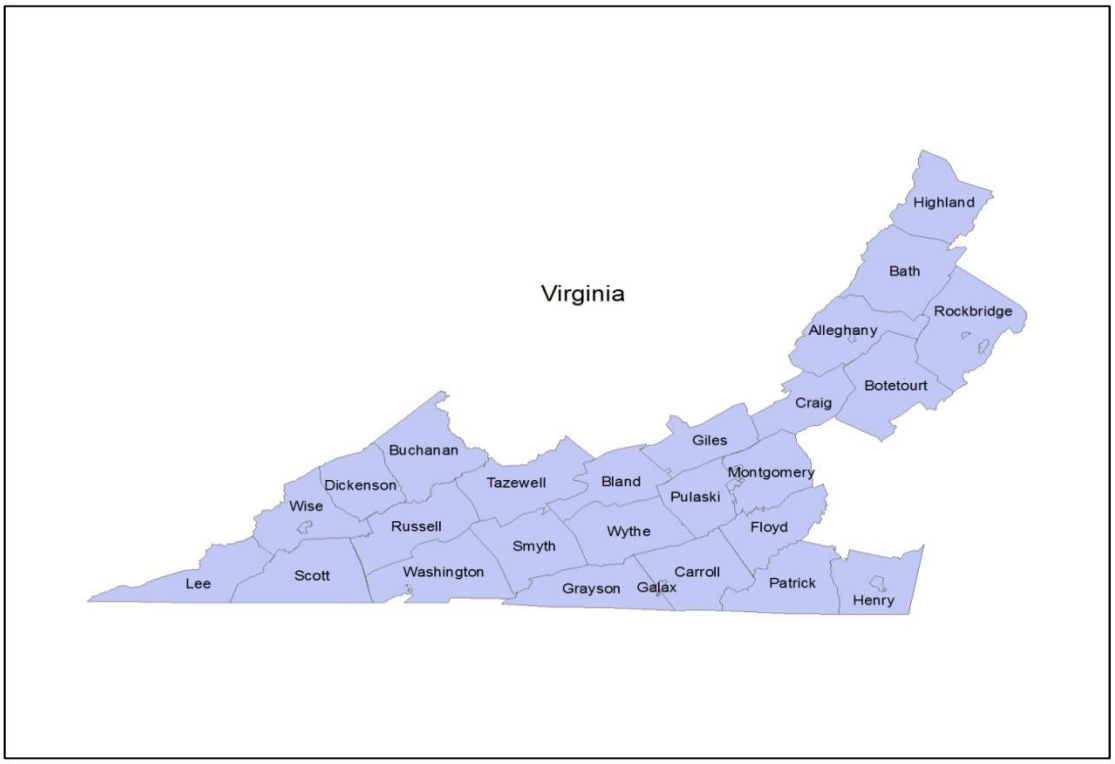
Figure1

In Virginia, the counties with formal Appalachian designations include Alleghany, Bath, Bland, Botetourt, Buchanan, Carroll, Craig, Dickenson, Floyd, Giles, Grayson, Henry, Highland,

Lee, Montgomery, Patrick, Pulaski, Rockbridge, Russell, Scott, Smyth, Tazewell, Washington, Wise, and Wythe (see Figure 2). In addition there are seven city districts that constitute LEAs. The city districts are: Buena Vista City, Covington City, Galax City, Lexington City, Martinsville City, Norton City, and Radford City.

The sample consisted of a total of 55 LEAs, all within the Appalachian region. All data were available for LEAs on ID rates except for the LEAs of Buena Vista City, Craig, Galax City, Highland, Lexington City, and Radford City which were coded as missing.

Figure 2



Time Span of Interest

Prevalence rates for each of the aforementioned LEAs were for school years 2011-2012, 2012-2013, and 2013-2014.

Procedure

The administrative prevalence rates of intellectual disabilities in West Virginia and Virginia were calculated using the following formula:

$$\frac{\text{Unduplicated count of children and adolescents with intellectual disabilities ages 3-21 in an LEA}}{\text{LEA's PreK- 12 student enrollment for all students (The denominator includes students with and without disabilities)}} \text{ X 100\%}$$

The numerator of the calculation was the total number of children and adolescents (Ages 3-5 and 6-21) with intellectual disabilities as reported in the States' IDEA Children with Disabilities Reports. Section 641 of IDEA 2004 requires states to annually count children receiving special education services on any date between October 1 and December 1. In the case of the two states in the present study, December 1 was and historically has been the annual IDEA child count date for all years under examination. According to the Federal Register, Rules and Regulation (IDEA, 2006), he count specifications additionally require that:

" 1) the child or student's age be calculated as of the day of the actual child count collection; 2) the count is an unduplicated one and the child may only be counted under the primary disability category; 3) the child had a disability and is receiving special education and related services or special education services only on the date of the count; 4) students with disabilities who are enrolled by their parents in private schools and are eligible under IDEA shall be counted if they receive special education or related services or both; and 5) children and adolescents should be reported by the LEA that has responsibility for the students" (p. 46804).

In addition to meeting the general child count requirements, the students must have a primary disability of intellectual disability on December 1 of each year to be included in the numerator. The population of students with intellectual disabilities between the ages of 3 and 21 years old will also be extracted from the Child Count for Virginia on the Virginia Department of Education website for the years 2010 through 2013.

West Virginia enrollment collection

The denominator of the calculation for West Virginia is based on total district enrollment or the official annual student count for grades preschool through 12. The enrollment collection or snapshot occurs on or about October 1st each year. In West Virginia, the total enrollment count included in the denominator contains no ungraded classes or students assigned to grades 13 or adult education. The total enrollment statistic does include preschool students in public schools or collaborative programs, students enrolled in grades K-12, homebound students who are enrolled but receiving services in a home setting due to medical reasons, and students with disabilities enrolled in the home county (or responsible LEA) but serviced through an out-of-school environment or residential in-state or out-of-state setting.

Virginia enrollment collection

Virginia total enrollment data was extracted from the Virginia Department of Education website wherein all enrollment data is provided for the years 2010 through 2013. The official date of the enrollment data collected in Virginia is September 30th of each year. Those not included in the Fall Membership count are special education preschool students, students in hospitals, clinics or detention homes and local programs such as vocational and alternative education centers.

Year-to-year percent changes

The formula for the percentage of change in enrollment from year-to-year in both West Virginia and Virginia LEAs was calculated using the following formula:

$$\frac{(y2 - y1)}{y1} \, x \, 100$$

The years were subtracted then divided by the previous year and multiplied by 100 to obtain a percentage of change.

Other status variables

Data for the status variables of interest were pulled based on 2012 statistics, since each variable wasn't always accessible to researchers for both states across the three years of 2011, 2012, and 2013 of interest. Therefore, data from the middle year under examination were used to perform the analysis. The data for the LEA poverty rates were extracted from www.kidscount.org for analysis. Poverty is defined by the United States Census Bureau as "a family's total income being less than their threshold." The poverty thresholds do not vary geographically, but they are updated for inflation using Consumer Price Index http://www.census.gov. The teenage pregnancy rate data were extracted from the Virginia Department of Health http://www.vdh.state.va.us and West Virginia Kids Count http://datacenter.kidscount.org/. The rates are established based on how many teen pregnancies there were per 1000 females. The race and ethnicity data were extracted from the Virginia Department of Education http://doe.virginia.gov and the WV Department of Education http://zoomwv.k12.wv.us/ websites. The percentages were calculated by dividing the number of White students by the total enrollment of each LEA and then multiplying that number by 100. After the majority percentage was established it was subtracted from 100 percent to obtain the minority percentage. The economic status data of LEAs in both West Virginia and Virginia were

extracted from the Appalachian Regional Commission data center http://www.arc.gov/. The data were analyzed by county comparing ID identification percentages to those of Southern West Virginia based on the variables of poverty, teenage pregnancy, and race/ethnicity. A correlation between the intellectual disabilities and poverty, teen pregnancy, and minority status was computed to determine the relationship between variables. Also, to evaluate the relationship with Economic Status and State Divisions an Analysis of Variance (ANOVA) was performed.

CHAPTER 3:

RESULTS

Enrollment and ID Rates

The total enrollment (see Table 1) and change in enrollment (see Table 2) were examined to determine the trends in enrollment for the LEAs under investigation. When assessing the percent of change in enrollment from year to year, the researcher found the majority of the LEAs under investigation had decreasing enrollment over the past three years. Only five LEAs have had increasing enrollment over the past three years. The five LEAs with consistent increasing enrollment were Cabell, Putnam, Summers, Patrick, and Rockbridge, the first three of which are West Virginia LEAs. The researcher also examined the ID rates (see Table 3) and the percentage of change (see Table 4) between them over the past three years. The researcher found that 14 of the 55 LEAs have had decreasing percentages of intellectual disability over the past three years whereas seven of the 55 LEAs have had increasing percentages. No data on ID rates was available for six of the 55 LEAs and two LEAs had incomplete ID data for all three years. When all of the LEAs were ranked by ID prevalence rates and divided into quartiles (see Table 5) the West Virginia LEAs had higher rates than the Appalachia Virginia LEAs; however Appalachia Virginia LEAs rates are increasing. The researcher color coded the RESA divisions which showed RESA I having the highest rates followed by RESA II which were predominately within the fourth quartile. RESA III was scattered amongst quartile two, three, and four while RESA IV was predominately in the third Quartile. The Appalachian Virginia counties were mainly within the first and second quartiles with only five of their LEAs in the third Quartile. Those five LEAs were Bland, Buchanan, Bristol City, Lee and Russell. Russell was in the fourth Quartile in 2011 but in the third for 2012 and 2013.

<u>Hypothesis 1</u>: Based on the geographical similarities between West Virginia and Virginia there will be little difference between prevalence rates.

When exploring mean differences between Virginia's Appalachian LEAs and the West Virginia RESAs of interest, the average identification rate of ID among the Virginia's Appalachian LEAs was 0.88-2.44%, 1.31-2.80%, and 1.13-2.92% lower than the average RESA ID rates in Southern West Virginia in 2011, 2012 and 2013, respectively (see Table 6). Significant differences between the Virginia region and the Southern West Virginia RESAs were found for all three years being analyzed.

A one-way between subjects ANOVA was conducted to determine if the average identification rates of ID were significantly different based on regional status in 2011, 2012, and 2013 (see Table 7). A significant effect of mean ID rates by regional status was found at the $p<.05$ level for each year in the study (2011: [$F(8, 71) = 9.937$, $p = .000$], 2012: [$F(8, 74) = 12.104$, $p = .000$], 2013: [$F(8, 74) = 12.221$, $p = .000$]). Post-hoc correlational analyses using the Tukey HSD test was conducted to determine which regions exhibited significantly different ID prevalence rates (see Table 8). Significant differences were revealed between RESA I and RESA III, which is consistent with Stephens' (2015) findings. The Virginia regional ID rate was significantly different when compared to RESA I, II, and IV at the .001 level of significance.

Moreover, when all 55 West Virginia LEAs were compared to the Virginia Appalachian region (28 LEAs) using an independent t-test to determine the significance levels, significant results were obtained. The average identification rate of ID among the Virginia's Appalachian Region was 1.27%, 1.48, and 1.47% lower than the average West Virginia ID rates in West Virginia in 2011, 2012 and 2013, respectively. The results were significant at the 0.01 significance level.

<u>Hypothesis 2:</u> Consistent with prior research, LEAs with higher poverty will have higher ID prevalence rates.

The researcher hypothesized LEAs with higher poverty rates will have higher rates of ID. As demonstrated by Table 13,McDowell, Webster, Martinsville City, Lee, Galax City, Summers, Clay, Bristol City, Norton City, Mercer, Fayette, Mingo, Wyoming, and Lincoln were the districts positioned in the fourth quartile for highest rates of children in poverty. Out of the fourth quartile six of the 14 are tied for 44.5th place. West Virginia school districts account for nine of the 14 LEAs in the fourth quartile. When comparing the LEAs with the most impoverished children to the districts ID rates, most of the counties found to be impoverished are also the LEAs with the highest ID rates. McDowell, Webster, Summers, Clay, Mercer, Mingo, Wyoming, and Lincoln were the seven counties with the highest ID rates which concomitantly had high rates of children living in poverty. The mean percentage of children living in poverty for the LEAs under investigation is 26 percent. A Pearson Correlation test was used to determine the relationship between the two variables. When the ID rates for 2011, 2012, and 2013 were correlated with the 2012 poverty rates a significant relationship was revealed (ID%2011= $r(47) = .54$, $p = .000$, ID%2012=$r(50)=.59$, $p=.000$; ID%2013=$r(50)=.59$, $p=.000$.).

The researcher also examined the economic status of each LEA and how economic status relates to the LEAs in terms of intellectual disability. The economy in the Virginia region of the Appalachians consists of 15 counties that contain distressed areas (see Table 9). Only one of the 15 LEAs however has a distressed overall economic status while the others were either At-Risk or Transitional with areas of distress. All other counties in the Virginia region are Transitional.

The economy of Southern West Virginia consists of 18 counties that contain distressed areas (see Table 10). Five of the 18 counties have an overall distressed status while the others

have either an At-Risk or Transitional status with areas of distress. The five counties with an overall distressed status were Clay, Lincoln, McDowell, Summers, and Webster. Two counties within the state have a Competitive status, one of which is Putnam County.

A one-way between subjects ANOVA was computed to determine if ID rates varied significantly across the three years by the LEAs' 2012 economic status rating (see Table 11). A significant effect of Economic Status on ID rates at the $p<.05$ level for each year in the study (2011: [$F(2, 43) = 7.845$, $p = .001$], 2012: [$F(2, 44) = 7.306$, $p = .002$], 2013: [$F(2, 44) = 8.153$, $p=.001$]). The results of the Tukey post hoc tests indicate that the significant mean differences existed between ID rates for Distressed and At-Risk districts and Distressed and Transitional districts for all three years (see Table 12). The comparison between At-Risk and Transitional LEAs was insignificant for 2011, 2012, and 2013.

<u>Hypothesis 3:</u> Consistent with prior research, LEAs with younger maternal birth rate will have higher ID prevalence rates.

Teen pregnancy rates per 1000 were ranked by quartile. A teen pregnancy statistic is the number of teen pregnancies in general per 1000 females between the ages of 15 and 19 years old. Of the 14 LEAs with the highest rates of teen pregnancy (see Table 13), 12 were located in West Virginia (McDowell, Lincoln, Mingo, Fayette, Logan, Webster, Mercer, Boone, Raleigh, Wyoming, Braxton, and Greenbrier) (see Table 13). The two Virginia LEAs in the fourth quartile were the city LEAs of Galax and Norton. Consistent with the researcher's hypothesis, McDowell, Lincoln, Mingo, Webster, Mercer, and Wyoming are counties with the highest teen pregnancy which also maintain higher ID rates than those counties with low teen pregnancy. The mean teen pregnancy rate per 1000 is 35.40 for both West Virginia and Virginia LEAs under investigation. When looking at the rate per 1000 by state of LEAs under investigation Southern

West Virginia's rate is 44.39 per 1000 and Appalachia Virginia's rate is 23.06 per 1000. A Pearson Correlation was used to determine the relationship between teen pregnancy and ID rates. When the ID rate for 2011, 2012, and 2013 was computed with the 2012 teen pregnancy rates per 1000, a significant relationship was revealed (ID% 2011= $r(47) = .64$, $p = .000$, ID%2012=$r(50)=.71$, $p=.000$; ID%2013=$r(50)= .73$, $p=.000$.).

<u>Hypothesis 4:</u> Consistent with the disproportionality research, counties with higher minority rates will have higher ID prevalence rates. The LEAs with the highest minority rates were Martinsville City, Henry, Galax City, Covington City, Radford City, Lexington City, Bristol City, Kanawha, Montgomery, Norton City, Patrick, Cabell, Raleigh, and Mercer. Virginia's LEAs make up the majority of the Fourth Quartile with predominantly city districts included. The quartile with the lowest minority rates appears to contain more of the LEAs with higher ID rates than the quartile with the highest minority rates (see Table 13). The LEAs with little racial and ethnic diversity were revealed to be Russell, Bland, Webster, Wayne, Craig, Nicholas, Dickenson, Wyoming, Boone, Pocahontas, Lincoln, Clay, and Buchanan. A Pearson Correlation was run to determine the relationship between the minority rates and ID rates. When the ID rate for 2011, 2012, and 2013 was compared against the 2012 minority rate a significant relationship was revealed in 2011 and 2012 was approaching significance (ID% 2011= $r(47) = -.31$, $p = .033$, ID% 2012=$r(50)= -.27$, $p=.057$; ID%2013=$r(50)= -.21$, $p=.146$.). A lower level correlation was found demonstrating an inverse relation between minority percentages and ID rates. LEAs in the sample with lower levels of diversity tended to have higher ID prevalence rates; thus, the hypothesis was not substantiated.

Chapter 4: DISCUSSION

The purpose of this study was to examine administrative prevalence rates of ID for children and adolescents within Southern West Virginia over a three-year-period compared to rates in neighboring Virginia LEAs with designated Appalachian status to determine if significantly different rates were evident, and if prevalence varied according to poverty, maternal age, and race/ethnicity across all districts.

Hypothesis 1: The researcher hypothesized that there would be no difference in prevalence rate between states. The results revealed that despite geographical similarities in Southern West Virginia and Western Virginia, the rates of ID among Southern West Virginia LEAs were significantly higher. These results bring about the question as to why ID administrative prevalence rates are significantly higher for West Virginia LEAs, particularly those in the southern region. Although the identification of the causal variables which account for the differences in ID prevalence rates is beyond the scope of the current study, one may postulate the disparities may be partially attributed to differences among eligibility categories in the two states. Some states, such as Virginia, utilize the multiple disabilities category, which may reduce Virginia's overall rate of students in the ID category. A total of 175 students with multiple disabilities were reported on the annual child count for the 2013-2014 school year in the Appalachia Virginia LEAs and 3,400 cases were reported statewide. However, the use of the multiple disability category by Virginia and not by West Virginia is unlikely to account for the large, overall discrepancies.

Another variable which may account for the disproportionately high rates of ID identification in West Virginia is the manner in which an adaptive deficit is defined through WVBE Policy 2419. Adaptive deficits are required in only two of the specific skill areas, as opposed to any cluster or composite score. Virginia's definition specifically states the adaptive

deficit must be observed in a composite score. In practice, many children and adolescents receiving special education who do not have intellectual disabilities but rather speech and language impairments or specific learning disabilities frequently exhibit adaptive impairment in the specific skill areas of communication and functional academics. Low performance on the composite score, however, generally requires additional areas of adaptive impairment which are not necessarily representative of a child with a milder academic or communication disability. In practice, a combination of causal variables is likely to contribute to the overall differences. District implementation of the policies and procedures, such as evaluation, identification, and re-evaluation practices, are certainly expected to impact identification. Professional development, or a lack thereof, regarding how school psychologists and eligibility committees are expected to handle children and adolescents in the borderline range of intellectual functioning serve as other potential variables that may impact the prevalence rates, as does the existence of strong multi-tiered systems of intervention support. Districts or states with stronger systems of supports for all students may limit ID rates through effective provision of differentiated instruction and intervention exclusively in the general education setting. While it is unknown at this time why the difference in rates exists, the status variables such as poverty, maternal age, and race/ethnicity were additionally examined to see if they served as predictors for high ID rates.

Hypothesis 2: Consistent with prior research, poverty was found to be positively correlated with ID rates. Eight of the 14 LEAs in the fourth quartile for poverty were also in the fourth quartile for ID rates. The majority of the highest ranked LEAs for poverty were West Virginia LEAs. These results are supportive of the work of Emmerson and Hatton (2007), Bergen (2008), and Boyle et al. (2011) who all found poverty to be associated with higher prevalence rates of children with intellectual disabilities. The LEAs that Stephens (2015) found

to have higher ID rates in West Virginia were also counties of higher poverty within the state. Although not specifically included as a hypothesis, another important finding with respect to the economic status of districts in West Virginia as compared to Virginia is that Southern West Virginia districts appeared more impoverished than Appalachian Virginia. While one Virginia district received the *Distressed* status, five West Virginia districts received this same rating. Therefore, given the research supporting poverty as a predictive variable for higher ID rates, it is not surprising rates in Southern West Virginia are higher as a whole.

Hypothesis 3*:* The researcher hypothesized low maternal age, as operationalized through teen pregnancy rates, would be positively correlated with ID rates, and this hypothesis was substantiated. Six of the 14 LEAs in the fourth quartile for teen pregnancy were also in the fourth quartile for ID rates. More West Virginia districts were positioned in the fourth quartile (12 of 14) for teen pregnancy. The research on teen pregnancy in relation to intellectual disabilities suggests younger mothers between the ages of 15-19 years old comprise the largest population at risk for having a child with an intellectual disability (Chapman et. al, 2002). According to the results of the current study, the LEAs with higher rates of teen pregnancy did have higher rates of children with intellectual disabilities. Another important caveat to note is that the actual number of children born with an intellectual disability to a young mother was not collected or analyzed.

While these results are correlational only, they suggest if school psychologists and other school staff implement primary teen pregnancy primary initiatives, they inherently target the reduction of ID rates for future generations of children.

Hypothesis 4: Conversely, the majority of LEAs with the largest minority populations tended to be Virginia LEAs and, for the sample of interest, diversity in race/ethnicity tended to

be inversely correlated with ID rates. While significant with a relatively low level Pearson's R value for 2011, this inverse relationship between minority status and ID rates is inconsistent with past research wherein higher minority rates tend to be positively associated with higher ID rates (Skiba et al., 2008). Also, the research by Zhang et al. (2014) found in that those of race/ethnicity were more represented in the special education population than White students except for Asian and Pacific Islanders which are underrepresented. However, the manner in which the race/ethnicity variable was defined at the LEA level as percent diversity in the overall enrollment may have been a limiting factor.

Limitations and Future Research

Although the current study advanced our understanding of administrative prevalence rates in Southern West Virginia and the Appalachian region in Western Virginia, it includes several limitations. First, data were unavailable for a minority of the Virginia LEAs and thus, a complete comparison could not be conducted. Secondly, while the regional comparison between Southern West Virginia and Appalachian Virginia was an important starting point, the poverty in the West Virginia LEAs was more pervasive than in the Virginia districts and poverty was not controlled for in the research design. Additionally, aggregation of the prevalence rates provided a foundation for future research but causality of the key variables cannot be determined. Fourth, the study only focused on primary disabilities and did not include secondary disabilities which may have altered identification rates. Another major limitation was the manner in which minority status was defined. The variable was defined as a percent of all race/ethnicities combined in a given LEA (i.e., percent of non-White student enrollment). These rates were not tied directly to students who were actually referred or made eligible for special education under

the ID classification. Nor were they sensitive to reflect the diversity of the six race/ethnicities which are collected federally for education statistics.

Future research should include onsite evaluation of district practices to determine how LEAs implement referral, evaluation, eligibility determinations, and re-evaluations which may directly impact prevalence rates. Also, a better design is needed for minorities in future studies, as well as participants or districts matched by key variables such as poverty.

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Appendix A:
Letter from Institutional Research Board

MARSHALL UNIVERSITY
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Office of Research Integrity
Institutional Review Board

May 4, 2015

Lanai Jennings, PhD, NCSP
Assistant Professor
Marshall University College of Education and Professional Development
School Psychology Program
100 Angus E. Peyton Drive Room GC 108
South Charleston, WV 25303

Dear Dr. Jennings:

This letter is in response to the submitted thesis abstract for Tiffany Yancey entitled *"A Regional Comparison of Intellectual Disability Rates in Appalachia."* After assessing the abstract it has been deemed not to be human subject research and therefore exempt from oversight of the Marshall University Institutional Review Board (IRB). The Code of Federal Regulations (45CFR46) has set forth the criteria utilized in making this determination. Since the information in this study does not involve human subjects as defined in the above referenced instruction it is not considered human subject research. If there are any changes to the abstract you provided then you would need to resubmit that information to the Office of Research Integrity for review and a determination.

I appreciate your willingness to submit the abstract for determination. Please feel free to contact the Office of Research Integrity if you have any questions regarding future protocols that may require IRB review.

Sincerely,

Bruce F. Day, ThD, CIP
Director

Appendix B:
VITA/Resume

Tiffany Yancey
301 Karnes St.
Princeton, WV 24740
(304)646-4351
Yancey6@live.marshall.edu

Objective

To provide student support services through assessment, counseling, and other direct and indirect services to best serve their needs.

Employment History

Intern School Psychologist
August 2014-Present Smyth County Schools
121 Bagley Circle, Suite 300, Marion, VA 24354
Phone: 276-783-3791
Supervisor: Steve Blevins

- Assessment
- Consultation
- Behavior Management
- Progress Monitoring
- Counseling (group and individual)
- Professional Development

Therapeutic Day Treatment Counselor
May 2012- April 2014 Family Preservation Services
3 N. Franklin St., Christiansburg, VA 24073
Phone: (540) 381-7500
Supervisor: Jessica Laffrey (no longer at Family Preservation), Laura Taylor

- Counseling (individual and group)
- Behavior management
- Treatment planning

Family Service Worker

Sept. 2011- April 2012 KVC Behavioral Healthcare, Inc.
117A, Rural Acres Dr., Beckley, WV 25801
Phone: 304-929-4130/ Supervisors # 304-741-9870
Supervisor: Chasity Young/ Clinical Director (no longer at KVC)

- Supportive counseling with children and adults
- Behavior management
- Foster care services

Crisis Specialist

Oct. 2010- Sept. 2011 FMRS Behavioral Health Systems, Inc.
1000, N. Eisenhower Dr., Beckley, WV 25801
Phone: 304-256-7100/ Supervisors # 304-256-7119
Supervisor: Mike Sauls/ Program Coordinator

- Intake assessments
- Group supportive counseling
- Supervision of psychiatric patients

Education

August 2012- Present Marshall University, Huntington, WV
- Ed.S. School Psychology- 5/2015
- GPA- 3.66

August 2010- August 2012 Marshall University, Huntington, WV
- MA Psychology- 12/2012
- GPA currently 3.61

August 2006- May 2010 Concord University, Athens, WV
- BA of Liberal Arts- 5/2010
- Major: Psychology
- Minor: Sociology
- GPA 3.1

Other Experience

- Have conducted research on how recess affects a child's ability to perform in the classroom.
- Have worked with substance abuse patients at a detox center within the crisis unit.

Appendix C:
Tables

Table 1

Total Enrollment

LEA ID	2011	2012	2013
Boone	4553	4526	4543
Braxton	2157	2156	2128
Cabell	12880	12979	13085
Clay	2047	2060	1975
Fayette	6874	6867	6810
Greenbrier	5302	5223	5191
Kanawha	28429	28548	28378
Lincoln	3689	3736	3691
Logan	6393	6426	6271
Mason	4311	4323	4312
McDowell	3535	3537	3437
Mercer	9657	9673	9585
Mingo	4506	4441	4403
Monroe	1884	1852	1820
Nicholas	4051	4035	3956
Pocahontas	1145	1133	1112
Putnam	9779	9788	9907
Raleigh	12456	12580	12568
Summers	1564	1569	1596
Wayne	7453	7508	7446
Webster	1505	1493	1446
Wyoming	4197	4270	4256
Alleghany	2728	2634	2330
Bath	674	647	612
Bland	866	891	830
Botetourt	5051	4962	4863
Bristol City	2409	2360	2329
Buchanan	3310	3281	3126
Buena Vista	1241	1057	1069
Carroll	4348	4355	3890
Covington City	942	982	979
Craig	708	694	646
Dickenson	2484	2394	2346
Floyd	2042	2034	1990
Galax City	1331	1322	1338
Giles	2445	2448	2423
Grayson	1864	1853	1769
Henry	7463	7465	7387
Highland	217	205	200

Lee	3594	3418	3280
Lexington City	521	532	519
Martinsville City	2317	2271	2259
Montgomery	9610	9742	9703
Norton City	904	891	841
Patrick	2570	2645	2905
Pulaski	4590	4520	4430
Radford City	1573	1570	1612
Rockbridge	2796	2815	2824
Russell	4430	4410	4177
Scott	3922	3917	3783
Smyth	4810	4845	4682
Tazewell	6552	6464	6221
Washington	7383	7383	7330
Wise	6246	6110	6111
Wythe	4401	4376	4308

Table 2

Percentage of Change in Enrollment

LEA Name	2011 compared to 2012	2012 compared to 2013	2011 compared to 2013
Boone	-0.59%	0.38%	-0.22%
Braxton	-0.05%	-1.30%	-1.34%
Cabell	0.77%	0.82%	1.59%
Clay	0.64%	-4.13%	-3.52%
Fayette	-0.10%	-0.83%	-0.93%
Greenbrier	-1.49%	-0.61%	-2.09%
Kanawha	0.42%	-0.60%	-0.18%
Lincoln	1.27%	-1.20%	0.05%
Logan	0.52%	-2.41%	-1.91%
Mason	0.28%	-0.25%	0.02%
McDowell	0.06%	-2.83%	-2.77%
Mercer	0.17%	-0.91%	-0.75%
Mingo	-1.44%	-0.86%	-2.29%
Monroe	-1.70%	-1.73%	-3.40%
Nicholas	-0.39%	-1.96%	-2.35%
Pocahontas	-1.05%	-1.85%	-2.88%
Putnam	0.09%	1.22%	1.31%
Raleigh	1.00%	-0.10%	0.90%
Summers	0.32%	1.72%	2.05%
Wayne	0.74%	-0.83%	-0.09%
Webster	-0.80%	-3.15%	-3.92%
Wyoming	1.74%	-0.33%	1.41%
Alleghany	-3.45%	-11.54%	-14.59%
Bath	-4.01%	-5.41%	-9.20%
Bland	2.89%	-6.85%	-4.16%
Botetourt	-1.76%	-2.00%	-3.72%
Bristol City	-2.03%	-1.31%	-3.32%
Buchanan	-0.88%	-4.72%	-5.56%
Buena Vista	-14.83%	1.14%	-13.86%
Carroll	0.16%	-10.68%	-10.53%
Covington City	4.25%	-0.31%	3.93%
Craig	-1.98%	-6.92%	-8.76%
Dickenson	-3.62%	-2.01%	-5.56%
Floyd	-0.39%	-2.16%	-2.55%
Galax City	-0.68%	1.21%	0.53%
Giles	0.12%	-1.02%	-0.90%
Grayson	-0.59%	-4.53%	-5.10%
Henry	0.03%	-1.04%	-1.02%
Highland	-5.53%	-2.44%	-7.83%
Lee	-4.90%	-4.04%	-8.74%
Lexington	2.11%	-2.44%	-0.38%

City			
Martinsville	-1.99%	-0.53%	-2.50%
City			
Montgomery	1.37%	-0.40%	0.97%
Norton City	-1.44%	-5.61%	-6.97%
Patrick	2.92%	9.83%	13.04%
Pulaski	-1.53%	-1.99%	-3.49%
Radford	-0.19%	2.68%	2.48%
City			
Rockbridge	0.68%	0.32%	1.00%
Russell	-0.45%	-5.28%	-5.71%
Scott	-0.13%	-3.42%	-3.54%
Smyth	0.73%	-3.36%	-2.66%
Tazewell	-1.34%	-3.76%	-5.05%
Washington	0.00%	-0.72%	-0.72%
Wise	-2.18%	0.02%	-2.16%
Wythe	-0.57%	-1.55%	-2.11%

Table 3

Intellectual Disability Rates

LEA Name	2011-2012	2012-2013	2013-2014
Boone	1.95%	2.08%	2.03%
Braxton	2.60%	2.60%	2.21%
Cabell	3.04%	2.86%	2.84%
Clay	3.32%	3.20%	3.09%
Fayette	2.05%	2.10%	2.38%
Greenbrier	2.49%	2.68%	2.68%
Kanawha	2.09%	2.17%	2.24%
Lincoln	3.50%	3.40%	3.49%
Logan	1.86%	1.99%	2.01%
Mason	3.09%	2.89%	2.85%
McDowell	5.94%	6.02%	6.23%
Mercer	3.57%	3.40%	3.59%
Mingo	2.73%	2.79%	2.57%
Monroe	3.98%	4.48%	4.18%
Nicholas	2.47%	2.23%	1.90%
Pocahontas	2.45%	2.56%	1.71%
Putnam	1.69%	1.81%	1.80%
Raleigh	2.19%	2.03%	2.12%
Summers	3.32%	3.76%	3.82%
Wayne	4.31%	4.13%	4.07%
Webster	2.92%	2.75%	2.77%
Wyoming	3.88%	4.19%	4.44%
Alleghany	0.92%	0.98%	1.29%
Bath	NA	0.00%	0.00%
Bland	2.42%	2.69%	2.53%
Botetourt	NA	0.28%	0.37%
Bristol City	2.03%	2.25%	1.98%
Buchanan	2.11%	2.22%	2.17%
Buena Vista	NA	NA	NA
Carroll	1.26%	1.26%	1.07%
Covington City	2.02%	1.43%	1.63%
Craig	NA	0.00%	0.00%
Dickenson	1.13%	1.04%	0.98%
Floyd	0.83%	1.28%	1.11%
Galax City	NA	NA	NA
Giles	1.26%	1.27%	1.40%
Grayson	1.23%	1.24%	1.02%
Henry	0.58%	0.68%	0.53%
Highland	NA	0.00%	0.00%
Lee	2.19%	2.19%	2.01%
Lexington	NA	NA	NA

City			
Martinsville City	1.08%	0.75%	1.15%
Montgomery	0.62%	0.60%	0.52%
Norton City	1.11%	NA	NA
Patrick	1.21%	1.13%	1.14%
Pulaski	1.00%	1.00%	0.93%
Radford City	NA	NA	NA
Rockbridge	0.82%	0.78%	0.85%
Russell	2.75%	2.61%	2.39%
Scott	1.10%	0.89%	0.85%
Smyth	1.27%	1.18%	0.94%
Tazewell	2.03%	1.89%	1.80%
Washington	0.93%	0.89%	0.80%
Wise	1.49%	1.57%	1.51%
Wythe	1.07%	0.91%	0.95%

Table 4

Percent Change in Intellectual Disability Rates

LEA Name	2011 compared to 2012	2012 compared to 2013	2011 compared to 2013
Boone	5.62%	-2.13%	3.37%
Braxton	0.00%	-16.07%	-16.07%
Cabell	-5.12%	0.27%	-4.86%
Clay	-2.94%	-7.58%	-10.29%
Fayette	2.13%	12.50%	14.89%
Greenbrier	6.06%	-0.71%	5.30%
Kanawha	4.38%	2.74%	7.24%
Lincoln	-1.55%	1.57%	0.00%
Logan	7.56%	-1.56%	5.88%
Mason	-6.02%	-1.60%	-7.52%
McDowell	1.43%	0.47%	1.90%
Mercer	-4.64%	4.56%	-0.29%
Mingo	0.81%	-8.87%	-8.13%
Monroe	10.67%	-8.43%	1.33%
Nicholas	-10.00%	-16.67%	-25.00%
Pocahontas	3.57%	-34.48%	-32.14%
Putnam	7.27%	0.56%	7.88%
Raleigh	-6.59%	4.31%	-2.56%
Summers	13.46%	3.39%	17.31%
Wayne	-3.43%	-2.26%	-5.61%
Webster	-6.82%	-2.44%	-9.09%
Wyoming	9.82%	5.59%	15.95%
Alleghany	4.00%	15.38%	20.00%
Bath	No Data	No Data	No Data
Bland	14.29%	-12.50%	0.00%
Botetourt	No Data	28.57%	No Data
Bristol City	8.16%	-13.21%	-6.12%
Buchanan	4.29%	-6.85%	-2.86%
Buena Vista	No Data	No Data	No Data
Carroll	0.00%	-23.64%	-23.64%
Covington City	-26.32%	14.29%	-15.79%
Craig	No Data	No Data	No Data
Dickenson	-10.71%	-8.00%	-17.86%
Floyd	52.94%	-15.38%	29.41%
Galax City	No Data	No Data	No Data
Giles	0.00%	9.68%	9.68%
Grayson	0.00%	-21.74%	-21.74%
Henry	18.60%	-23.53%	-9.30%
Highland	No Data	No Data	No Data
Lee	-5.06%	-12.00%	-16.46%
Lexington	No Data	No Data	No Data

City			
Martinsville City	-32.00%	52.94%	4.00%
Montgomery	-3.33%	-12.07%	-15.00%
Norton City	-100.00%	No Data	-100.00%
Patrick	-3.23%	10.00%	6.45%
Pulaski	-2.17%	-8.89%	-10.87%
Radford City	No Data	No Data	No Data
Rockbridge	-4.35%	9.09%	4.35%
Russell	-5.74%	-13.04%	-18.03%
Scott	-18.60%	-8.57%	-25.58%
Smyth	-6.56%	-22.81%	-27.87%
Tazewell	-8.27%	-8.20%	-15.79%
Washington	-4.35%	-10.61%	-14.49%
Wise	3.23%	-4.17%	-1.08%
Floyd	-14.89%	2.50%	-12.77%

Table 5

LEAs Ranked by ID Rates

ID Prevalence Rates 2011-2012	2011-2012 ID Rates	ID Prevalence Rates 2012-2013	2012-2013 ID Rates	ID Prevalence Rates 2013-2014	2013-2014 ID Rates
		4th Quartile			
McDowell	5.94	McDowell	6.02	McDowell	6.23
Wayne	4.31	Monroe	4.48	Wyoming	4.44
Monroe	3.98	Wyoming	4.19	Monroe	4.18
Wyoming	3.88	Wayne	4.13	Wayne	4.07
Mercer	3.57	Summers	3.76	Summers	3.82
Lincoln	3.50	Mercer	3.40	Mercer	3.59
Summers	3.32	Lincoln	3.40	Lincoln	3.49
Clay	3.32	Clay	3.20	Clay	3.09
Mason	3.09	Mason	2.89	Mason	2.85
Cabell	3.04	Cabell	2.86	Cabell	2.84
Webster	2.92	Mingo	2.79	Webster	2.77
Russell	2.75	Webster	2.75	Greenbrier	2.68
		3rd Quartile			
Mingo	2.73	Bland	2.69	Mingo	2.57
Braxton	2.60	Greenbrier	2.68	Bland	2.53
Greenbrier	2.49	Russell	2.61	Russell	2.39
Nicholas	2.47	Braxton	2.60	Fayette	2.38
Pocahontas	2.45	Pocahontas	2.56	Kanawha	2.24
Bland	2.42	Bristol City	2.25	Braxton	2.21
Raleigh	2.19	Nicholas	2.23	Buchanan	2.17
Lee	2.19	Buchanan	2.22	Raleigh	2.12
Buchanan	2.11	Lee	2.19	Boone	2.03
Kanawha	2.09	Kanawha	2.17	Lee	2.01
Fayette	2.05	Fayette	2.10	Logan	2.01
		2nd Quartile			
Tazewell	2.03	Boone	2.08	Bristol City	1.98
Bristol City	2.03	Raleigh	2.03	Nicholas	1.90
Covington City	2.02	Logan	1.99	Tazewell	1.80
Boone	1.95	Tazewell	1.89	Putnam	1.80
Logan	1.86	Putnam	1.81	Pocahontas	1.71
Putnam	1.69	Wise	1.57	Covington City	1.63
Wise	1.49	Covington City	1.43	Wise	1.51
Smyth	1.27	Floyd	1.28	Giles	1.40
Giles	1.26	Giles	1.27	Alleghany	1.29
Carroll	1.26	Carroll	1.26	Martinsville City	1.15
Grayson	1.23	Grayson	1.24	Patrick	1.14
Patrick	1.21	Smyth	1.18	Floyd	1.11

Dickenson	1.13	Patrick	1.13	Carroll	1.07
		1st Quartile			
Norton City	1.11	Dickenson	1.04	Grayson	1.02
Scott	1.10	Pulaski	1.00	Dickenson	0.98
Martinsville City	1.08	Alleghany	0.98	Wythe	0.95
Wythe	1.07	Wythe	0.91	Smyth	0.94
Pulaski	1.00	Scott	0.89	Pulaski	0.93
Washington	0.93	Washington	0.89	Scott	0.85
Alleghany	0.92	Rockbridge	0.78	Rockbridge	0.85
Floyd	0.83	Martinsville City	0.75	Washington	0.80
Rockbridge	0.82	Henry	0.68	Henry	0.53
Montgomery	0.62	Montgomery	0.60	Montgomery	0.52
Henry	0.58	Botetourt	0.28	Botetourt	0.37
Galax City	NA	Bath	NA	Bath	NA
Bath	NA	Highland	NA	Highland	NA
Lexington City	NA	Craig	NA	Craig	NA
Radford City	NA	Norton City	NA	Norton City	NA
Buena Vista City	NA	Galax City	NA	Galax City	NA
Highland	NA	Lexington City	NA	Lexington City	NA
Craig	NA	Radford City	NA	Radford City	NA
Botetourt	NA	Buena Vista City	NA	Buena Vista City	NA

RESA I: Red RESA II: Green RESA III: Blue RESA IV: Purple VA LEA: Yellow

Table 6

Mean ID Percentages by Region

State Region Divisions	Mean ID % 2011	Mean ID % 2012	Mean ID % 2013
1	3.82%	3.98%	4.06%
2	3.09%	3.01%	2.97%
3	2.26%	2.32%	2.29%
4	2.50%	2.49%	2.27%
Virginia Appalachia LEA	1.38%	1.18%	1.14%

Table 7

ANOVA Summary with State Division as Predictor

		Sum of Squares	df	Mean Square	F	Sig.
ID % Dec 2011	Between Groups	40.412	8	5.051	9.937	.000
	Within Groups	36.093	71	.508		
	Total	76.505	79			
ID % Dec 2012	Between Groups	55.232	8	6.904	12.104	.000
	Within Groups	42.211	74	.570		
	Total	97.443	82			
ID % Dec 2013	Between Groups	56.839	8	7.105	12.221	.000
	Within Groups	43.021	74	.581		
	Total	99.861	82			

Table 8

Post Hoc Comparisons with State Division as Predictor

						95% Confidence Interval	
Dependent Variable	(I) RESA	(J) RESA	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
ID % Dec 2011	RESA I	RESA II	0.72974%	0.41164%	.699	-0.5873%	2.0468%
		RESA III	1.55236%*	0.46023%	.031	0.0799%	3.0248%
		RESA IV	1.31995%*	0.41164%	.049	0.0029%	2.6370%
		VA LEAs	2.43731%*	0.32413%	.000	1.4003%	3.4743%
	RESA II	RESA I	-0.72974%	0.41164%	.699	-2.0468%	0.5873%
		RESA III	0.82262%	0.46023%	.690	-0.6499%	2.2951%
		RESA IV	0.59021%	0.41164%	.881	-0.7268%	1.9072%
		VA LEAs	1.70757%*	0.32413%	.000	0.6705%	2.7446%
	RESA III	RESA I	-1.55236%*	0.46023%	.031	-3.0248%	-0.0799%
		RESA II	-0.82262%	0.46023%	.690	-2.2951%	0.6499%
		RESA IV	-0.23241%	0.46023%	1.000	-1.7049%	1.2401%
		VA LEAs	0.88495%	0.38396%	.353	-0.3435%	2.1134%
	RESA IV	RESA I	-1.31995%*	0.41164%	.049	-2.6370%	-0.0029%
		RESA II	-0.59021%	0.41164%	.881	-1.9072%	0.7268%
		RESA III	0.23241%	0.46023%	1.000	-1.2401%	1.7049%
		VA LEAs	1.11736%*	0.32413%	.025	0.0803%	2.1544%
	VA LEAs	RESA I	-2.43731%*	0.32413%	.000	-3.4743%	-1.4003%
		RESA II	-1.70757%*	0.32413%	.000	-2.7446%	-0.6705%
		RESA III	-0.88495%	0.38396%	.353	-2.1134%	0.3435%
		RESA IV	-1.11736%*	0.32413%	.025	-2.1544%	-0.0803%
ID % Dec 2012	RESA I	RESA II	0.97033%	0.43605%	.401	-0.4230%	2.3637%
		RESA III	1.66550%*	0.48752%	.027	0.1077%	3.2233%
		RESA IV	1.49555%*	0.43605%	.026	0.1022%	2.8889%
		VA LEAs	2.80179%*	0.33977%	.000	1.7161%	3.8875%
	RESA II	RESA I	-0.97033%	0.43605%	.401	-2.3637%	0.4230%
		RESA III	0.69517%	0.48752%	.884	-0.8626%	2.2530%
		RESA IV	0.52521%	0.43605%	.953	-0.8681%	1.9186%
		VA LEAs	1.83146%*	0.33977%	.000	0.7458%	2.9172%
	RESA III	RESA I	-1.66550%*	0.48752%	.027	-3.2233%	-0.1077%
		RESA II	-0.69517%	0.48752%	.884	-2.2530%	0.8626%
		RESA IV	-0.16995%	0.48752%	1.000	-1.7278%	1.3879%

		VA LEAs	1.13629%	0.40370%	.129	-0.1537%	2.4263%
	RESA IV	RESA I	-1.49555%*	0.43605%	.026	-2.8889%	-0.1022%
		RESA II	-0.52521%	0.43605%	.953	-1.9186%	0.8681%
		RESA III	0.16995%	0.48752%	1.000	-1.3879%	1.7278%
		VA LEAs	1.30625%*	0.33977%	.007	0.2206%	2.3919%
	VA LEAs	RESA I	-2.80179%*	0.33977%	.000	-3.8875%	-1.7161%
		RESA II	-1.83146%*	0.33977%	.000	-2.9172%	-0.7458%
		RESA III	-1.13629%	0.40370%	.129	-2.4263%	0.1537%
		RESA IV	-1.30625%*	0.33977%	.007	-2.3919%	-0.2206%
ID % Dec 2013	RESA I	RESA II	1.08917%	0.44022%	.261	-0.3175%	2.4958%
		RESA III	1.77297%*	0.49218%	.016	0.2003%	3.3457%
		RESA IV	1.78908%*	0.44022%	.004	0.3824%	3.1957%
		VA LEAs	2.92174%*	0.34301%	.000	1.8257%	4.0178%
	RESA II	RESA I	-1.08917%	0.44022%	.261	-2.4958%	0.3175%
		RESA III	0.68379%	0.49218%	.898	-0.8889%	2.2565%
		RESA IV	0.69991%	0.44022%	.807	-0.7068%	2.1066%
		VA LEAs	1.83257%*	0.34301%	.000	0.7365%	2.9286%
	RESA III	RESA I	-1.77297%*	0.49218%	.016	-3.3457%	-0.2003%
		RESA II	-0.68379%	0.49218%	.898	-2.2565%	0.8889%
		RESA IV	0.01612%	0.49218%	1.000	-1.5566%	1.5888%
		VA LEAs	1.14878%	0.40756%	.127	-0.1535%	2.4511%
	RESA IV	RESA I	-1.78908%*	0.44022%	.004	-3.1957%	-0.3824%
		RESA II	-0.69991%	0.44022%	.807	-2.1066%	0.7068%
		RESA III	-0.01612%	0.49218%	1.000	-1.5888%	1.5566%
		VA LEAs	1.13266%*	0.34301%	.037	0.0366%	2.2287%
	VA LEAs	RESA I	-2.92174%*	0.34301%	.000	-4.0178%	-1.8257%
		RESA II	-1.83257%*	0.34301%	.000	-2.9286%	-0.7365%
		RESA III	-1.14878%	0.40756%	.127	-2.4511%	0.1535%
		RESA IV	-1.13266%*	0.34301%	.037	-2.2287%	-0.0366%

Table 9

Virginia Appalachia LEAs Economic Status

VA County	Economic Status	Number of Distressed Areas
Alleghany (+Covington City)	Transitional	1
Buchannan	At-Risk	4
Carroll (+Galax city)	At-Risk	2
Dickenson	At-Risk	2
Grayson	Distressed	Whole County
Henry (+Martinsville city)	At- Risk	4
Lee	At-Risk	2
Patrick	At-Risk	1
Pulaski	Transitional	1
Russell	At-Risk	1
Scott	At Risk	1
Smyth	At-Risk	2
Tazewell	Transitional	4
Washington (+Bristol City)	Transitional	3
Wise (+Norton city)	At-Risk	6

Table 10

West Virginia LEAs Economic Status

WV County	Economic Status	Number of Distressed Areas
Boone	At-Risk	0
Braxton	At-Risk	1
Cabell	Transitional	12
Clay	Distressed	Whole County
Fayette	At-Risk	3
Greenbrier	Transitional	3
Kanawha	Transitional	3
Lincoln	Distressed	Whole County
Logan	At-Risk	4
McDowell	Distressed	Whole County
Mercer	Transitional	8
Mingo	At-Risk	2
Monroe	Transitional	0
Nicholas	Transitional	2
Pocahontas	At-Risk	2
Putnam	Competitive	Whole County
Raleigh	Transitional	3
Summers	Distressed	Whole County
Wayne	Transitional	3
Webster	Distressed	Whole County
Wyoming	At-Risk	1

Table 11

ANOVA Summary of Economic Status as Predictor

		Sum of Squares	df	Mean Square	F	Sig.
2011-2012ID%	Between Groups	15.606	2	7.803	7.845	.001
	Within Groups	42.769	43	.995		
	Total	58.375	45			
2012-2013ID%	Between Groups	17.538	2	8.769	7.306	.002
	Within Groups	52.811	44	1.200		
	Total	70.349	46			
2013-2014ID%	Between Groups	19.456	2	9.728	8.153	.001
	Within Groups	52.499	44	1.193		
	Total	71.954	46			

Table 12

Post Hoc Comparisons of Economic Status as Predictor

Dependent	Variable	(I) ARC2012 Recode	(J) ARC2012 Recode	Mean Difference (I-J)	Std. Error	Sig.
2011-2012	Tukey HSD	Distressed	At-Risk	1.90737%*	0.50127%	.001
ID%			Transitional	1.83409%*	0.49410%	.002
		At-Risk	Distressed	-1.90737%*	0.50127%	.001
			Transitional	-0.07328%	0.31235%	.970
		Transitional	Distressed	-1.83409%*	0.49410%	.002
			At-Risk	0.07328%	0.31235%	.970
	Tukey HSD	Distressed	At-Risk	1.89544%*	0.55383%	.004
			Transitional	2.02767%*	0.53857%	.001
2012-2013		At-Risk	Distressed	-1.89544%*	0.55383%	.004
ID%			Transitional	0.13222%	0.34160%	.921
		Transitional	Distressed	-2.02767%*	0.53857%	.001
			At-Risk	-0.13222%	0.34160%	.921
2013-2014	Tukey HSD	Distressed	At-Risk	2.05833%*	0.55219%	.002
ID%			Transitional	2.10583%*	0.53698%	.001
		At-Risk	Distressed	-2.05833%*	0.55219%	.002
			Transitional	0.04750%	0.34059%	.989
		Transitional	Distressed	-2.10583%*	0.53698%	.001
			At-Risk	-0.04750%	0.34059%	.989

Table 13

Variables Ranked by Quartiles

Children in Poverty Quartiles	Children in Poverty	Teen Pregnancy Quartiles	Teen Pregnancy per 1000	Minority Status Quartiles	Minority Rates
			4th Quartile		
McDowell	0.49	McDowell	78.1	Martinsville	69.44
Webster	0.4	Lincoln	75.2	Henry	38.75
Martinsville City	0.39	Mingo	74	Galax City	37.37
Lee	0.37	Fayette	72.2	Covington City	26.58
Galax City	0.36	Logan	70.6	Radford City	18.60
Summers	0.35	Webster	65.9	Lexington City	18.23
Clay	0.34	Norton City	63.3	Bristol City	16.36
Bristol City	0.33	Mercer	61.3	Kanawha	16.20
Norton City	0.31	Boone	57.6	Montgomery	15.90
Mercer	0.31	Raleigh	56.1	Norton City	15.38
Fayette	0.31	Wyoming	55.1	Patrick	14.33
Mingo	0.31	Braxton	50.8	Cabell	13.48
Wyoming	0.31	Greenbrier	49.1	Raleigh	13.09
Lincoln	0.31	Galax City	48.3	Mercer	13.02
			3rd Quartile		
Pocahontas	0.30	Summers	47.6	Pulaski	12.72
Wise	0.29	Mason	46.5	McDowell	12.27
Braxton	0.29	Kanawha	46.1	Alleghany	11.43
Buchanan	0.29	Cabell	43.7	Rockbridge	10.94
Henry	0.28	Nicholas	43.3	Carroll	10.65
Smyth	0.28	Monroe	42.5	Buena Vista City	10.41
Scott	0.28	Clay	41.1	Grayson	8.85
Logan	0.28	Pocahontas	39.4	Bath	8.66
Mason	0.28	Wayne	39.1	Floyd	8.65
Wayne	0.28	Martinsville City	37.1	Wythe	8.52
Patrick	0.27	Covington City	35.7	Fayette	7.88
Grayson	0.27	Lee	32.6	Botetourt	7.62
Dickenson	0.27	Putnam	30.3	Greenbrier	6.78
		Pulaski	29.9	Washington	6.75
			2nd Quartile		
Cabell	0.26	Smyth	29.5	Summers	5.86
Raleigh	0.26	Wythe	29	Tazewell	5.85
Carroll	0.26	Giles	28.8	Highland	5.85
Tazewell	0.26	Wise	26.1	Smyth	5.41
Nicholas	0.26	Bland	25.6	Giles	5.39
Boone	0.26	Tazewell	23.8	Putnam	4.91
Greenbrier	0.25	Dickenson	23.7	Wise	4.32

Covington City	0.24	Carroll	23.3	Scott	4.14
Buena Vista City	0.24	Buchanan	23.2	Logan	3.56
Monroe	0.24	Russell	23.1	Mason	2.91
Russell	0.24	Bristol City	19.7	Mingo	2.84
Kanawha	0.23	Bath	19.2	Monroe	2.65
Pulaski	0.23	Lexington City	19	Braxton	2.32
Wythe	0.23	Washington	18.9	Lee	2.25
Craig	0.22				

1st Quartile

Alleghany	0.21	Radford City	18.4	Russell	2.24
Highland	0.21	Henry	18.3	Bland	2.24
Radford City	0.2	Floyd	16.5	Webster	2.01
Floyd	0.2	Scott	16.1	Wayne	1.98
Washington	0.2	Patrick	15.9	Craig	1.73
Bland	0.19	Buena Vista City	15.7	Nicholas	1.66
Montgomery	0.18	Grayson	15.6	Dickenson	1.55
Rockbridge	0.18	Alleghany	14.2	Wyoming	1.43
Giles	0.18	Montgomery	12.1	Boone	1.41
Bath	0.16	Rockbridge	11.9	Pocahontas	1.41
Putnam	0.14	Highland	10.1	Lincoln	1.23
Lexington City	0.12	Craig	9.5	Clay	.92
Botetourt	0.1	Botetourt	7	Buchanan	.73

RESA I: Red RESA II: Green RESA III: Blue RESA IV: Purple VA LEA: Yellow