

Running title: Providers' responses and service use

**Providers' Guidance to Parents and Service Use for Latino Children with  
Developmental Disabilities**

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## **Title: Providers' Guidance to Parents and Service Use for Latino Children with Developmental Disabilities**

### **Abstract**

To better understand disparities between Latino and White children with autism and/or other developmental disabilities (ASD/DD), we examined whether Latino ethnicity predicted the number of specialty care services received by children with severe functional limitations depending on medical providers' responses to parents' initial concerns about their child's development. Through linkage of Pathways and NS-CSHCN dataset, we found ethnic disparities in specialty service receipt associated with providers' responsiveness to parent-reported concerns among children with ASD/DD. Latino children whose parents received passive/reassuring responses from their providers were less likely to receive specialty services than their White counterparts among children with ASD/DD who had severe functional limitations. **Providers' guidance to parents** may be a promising point of intervention for future disparity reduction efforts.

*Keywords:* children with autism and/or developmental disabilities, ethnic disparities, **providers' guidance to parental first concerns**, specialty care service use

## Introduction

Persistent disparities exist in access to and quality of healthcare services among children of racial/ethnic minority status with autism spectrum disorder (ASD) and/or developmental disabilities (DD) (Boyle et al., 2011; Durkin et al., 2010; Thomas et al., 2012). As a population, children with ASD/DD experience more unmet primary and specialty care needs compared to their non-disabled peers, including problems with access to routine care, behavioral, speech, language, occupational and physical therapies, dental care, and mental health services (Chiri & Warfield, 2012; Kogan et al., 2008; Krauss, Gulley, Sciegaj, & Wells, 2003). The challenges of accessing appropriate care is especially elevated for racial/ethnic minorities, including Latino children with ASD/DD, who experience worse quality, access, and utilization of general health care services (Magaña, Parish, Rose, Timberlake, & Swaine, 2012; Magaña, Parish, & Son, 2015; Mandell et al., 2009; Parish, Magaña, Rose, Timberlake, & Swaine, 2012; Parish, Magaña, Son, & Swaine, 2013) and have lower rates of receiving various specialty services, such as behavioral interventions, occupational therapy, social skills training, and sensory integration compared to their White, non-Latino peers (Broder-Fingert, Shui, Pulcini, Kurowski, & Perrin, 2013; Lai, Milano, Roberts, & Hooper, 2012; Magaña, Lopez, Aquinaga, & Morton, 2013; Magaña, Parish, & Son, 2016). For instance, a previous study found that among children with severe limitations, White children received more specialty services than Latino children (Magaña et al., 2016).

Providers' guidance to parental first concerns and treatment needs may contribute to racial/ethnic disparities in healthcare and specialty care for children with ASD/DD. The content and nature of providers' guidance to parental first concerns account for racial and ethnic disparities in some forms of health care (Mandell, Listerud, Levy, & Pinto-Martin, 2002; Montes & Halterman, 2011). In terms of the types of first concerns that were reported by parents, we

found using our dataset that parents of Latino children were first concerned that their child had difficulty learning new skills such as toilet training or getting dressed, had behavioral difficulties such as sleeping or eating problems, high activity level, wandering, tantrums, aggressive or destructive behavior, had difficulty playing or interacting with others, or played alone “in [his/her] own world” and talked later than usual for most children, while parents of White children were first concerned that their child did not talk as well as other children that were the same age, had difficulty playing or interacting with others, or played alone “in [his/her] own world”, and insisted on sameness or had difficulties with change. Cultural differences (e.g., understanding illnesses, beliefs, behaviors differently) can negatively influence communication between health-care providers and patients and affect the care that patients receive (Kilbourne, Switzer, Hyman, Crowley-Matoka, & Fine, 2006; Son, Sammet, Igdalsky, & Parish, 2018). Furthermore, proactive provider responses (e.g., conducted developmental tests, specialist referral made, or suggested that parent discuss concerns with child's school) to parent concerns compared to passive/reassuring responses (said that the behavior was normal, child was too young to tell, or might grow out of it) have been associated with shorter delays in ASD diagnosis, though parents of children with ASD tend to receive less proactive responses to their concerns and more passive/reassuring responses from providers (Zuckerman, Lindly, & Sinche, 2015). Previous study has defined “proactive” versus “passive/reassuring” response based on whether the child’s medical provider responded proactively or passively to parent-reported concerns (Zuckerman et al., 2015).

However, the role of providers’ guidance to parental first concerns in the receipt of specialty services among racial and ethnic minority children ASD/DD has not been well studied, especially for Latino parents. A study that examined this relationship found that poor parent-

provider interaction (e.g., not spending enough time with the child, not being culturally sensitive, and not making the parent feel like a partner) was associated with lower utilization of health care for Latino children with ASD/DD (Parish et al., 2012). A few qualitative and case studies have also stressed the importance for providers to consider cultural factors providing in the assessment and treatment of ASD/DD (El-Ghoroury & Krackow, 2012; Ennis-Cole, Durodoye, & Harris, 2013; Gourdine, Baffour, & Teasley, 2011; Jegatheesan, 2009). These studies have examined differences in the perceptions of encounters between providers and parents of non-White children with ASD/DD. For instance, A 2009 study on Asian-American mothers of children with ASD/DD found many barriers to clear communication about a child's diagnosis and prognosis, due to cultural differences and traditions (Jegatheesan, 2009). Beyond differences related to English language proficiency and acculturation, Asian American mothers reported some of the reasons that created parent-provider misunderstandings included: (1) providers' use of complex terms in meetings and in handouts; (2) professionals' stereotypical perceptions of Asian values; (3) providers' beliefs and negative opinions about alternate medicine; (4) repeated negative comments about child's abilities and failure to acknowledge child's strengths; and (5) professionals' direct/blunt demeanor during interactions in contrast to parents' hesitancy to speak up due to fears of being disrespectful. Similarly, in another study conducted with African American families of children with ASD and ASD professionals, families reported that professionals' signs of rudeness, impatience, being in a "rush," and acting "like they know everything," were barriers to their relationship building (Burkett, Morris, Manning-Courtney, Anthony, & Shambley-Ebron, 2015). Moreover, African American families of children with ASD have noted experiences of inequality in healthcare and differences in clinical encounters associated with professionals' not listening, disregarding, or not taking action on expressed

parental concerns about their child or questioning parents' ability to deliver therapeutics at home (Burkett et al., 2015; Gourdine, Baffour, & Teasley, 2011). Intercultural communication skills have also been found to be limited among medical providers of Latino children (El-Ghoroury & Krackow, 2012; Zuckerman, Mattox, Donelan, Batbayar, Baghaee, & Bethell, 2013), potentially causing them to not "hear" or accurately understand concerns. Specifically, providers working with Latino families have reported having more difficulty recognizing developmental conditions such as ASD in Latino children, perceiving Latino families as less knowledgeable about ASD, and having limited access to refer families to developmental specialists (Zuckerman et al., 2013), all of which may lead to passive/reassuring provider responses to parental first concerns. A few other studies have found that Latino parents of children with ASD/DD reported that providers do not provide necessary information when giving parents a diagnosis or information about referrals (Blanche, Diaz, Barretto, & Cermak, 2015; Gannotti, Kaplan, Handwerker, & Groce, 2004). Thus, a passive/reassuring response coupled with limited information about next steps may contribute to lower specialty service use. However, no studies to date have examined whether there are ethnic disparities in specialty service use associated with how medical providers respond to parent-reported concerns.

In light of these gaps in the existing research, we examined ethnic disparities in specialty service receipt between Latino and White children with ASD/DD and severe limitations. We further evaluated the moderating effects of medical providers' responsiveness to parent-reported concerns on ethnic disparities in specialty service receipt, while controlling for child age, family income, parental education, urban/rural residence, insurance, regular source of care, and type of diagnosis. Specifically, we examined the following research questions: (1) among young children with severe limitations, were there ethnic disparities in specialty service receipt? (2)

were ethnic disparities in specialty service receipt associated with health care providers' responsiveness to parent-reported concerns? and (3) did providers respond differently to Latino parents' concerns versus White parents' concerns?

## **Methods**

### *Data Source*

The Data are derived from the 2011 Survey of Pathways to Diagnosis and Services (Pathways), which was a subsample of families who participated in the 2009-2010 National Survey of Children with Special Health Care Needs (NS-CSHCN). This study protocol was approved by the authors' university Institutional Review Boards. The 2009-10 NS-CSHCN is a computer-assisted, random-digit-dialed telephone survey conducted by the National Center for Health Statistics between July 2009 and March 2011. The NS-CSHCN yields a sample representative of the US civilian non-institutionalized population younger than 18 years of age (Centers for Disease Control and Prevention, National Center for Health Statistics, State and Local Area Integrated Telephone Survey, 2011).

A random sample of parents and guardians who reported in the NS-CSHCN that their child had ever been diagnosed with Autism Spectrum Disorder (ASD), intellectual disability (ID), and/or developmental delay (DD) were asked to participate in the 2011 Pathways Survey. The children of Pathways participants were aged 6-17 years and still living in the same household as the parent or guardian who was contacted again. **A total of 4,032 Pathways follow-up telephone interviews were completed**, an average of 9 months after the initial NS-CSHCN interview between February and May 2011 (Centers for Disease Control and Prevention, National Center for Health Statistics, State and Local Area Integrated Telephone Survey, 2012). We used the



datasets to select the sample for this study because 2011 Pathways survey as a follow-up to the 2009-2010 NS-CSHCN included rich information about parental concerns and perceptions, the process by which the child was diagnosed, access to care, service needs and use, functional limitations, and strengths and difficulties for children with ASD, DD or ID, as well as health care and education services. For the current analysis we specifically were interested in use of specialty services that are commonly used to treat ASD/DD which were only available in the Pathways data set.

Notably, while the NS-CSHCN was conducted in both English and Spanish, the Pathways was only conducted in English. Therefore, Latinos from the NS-CSHCN were excluded from the Pathways if they were not fluent in English.

### *Sample*

The sample of this study included Latino (N = 96) and White, non-Latino (N = 570) children with ASD/DD, who were under 11 years old and have severe limitations. We chose a subsample of children with severe limitations because these children are more likely to need specialty services (Magaña et al., 2016). Functional severity was defined as the extent to which the child's condition has an impact on his or her activities and it was self-report item by parents/caregivers. For example, children whose conditions "consistently, and often greatly, affect their daily activities (i.e., severe limitations)" are those with responses of "Usually" or "Always" on a question that is asking how often conditions affect daily activities of children. There were four response options such as "never", "sometimes", "usually", and "always" and we combined response of "usually" and "always". Table 1 explores the composition of the study sample by ethnicity. Though there were some differences seen among Latino and White, non-

Latino families, there were no statistically significant differences between Latino and White, non-Latino families in terms of demographic parental, familial and child variables as well as provider responses, except for specialty service utilization for children with ASD by ethnicity. There were more specialty service utilities for children with ASD than children with DD among the study sample. Particularly, White children with ASD were more likely to use specialty services than Latino children with ASD.

In prior published research with the NS-CSHCN, in which the surveys were conducted in Spanish as well as English, Latino parents had lower income and lower education levels compared to White parents of children with ASD/DD (Parish et al., 2012). This finding indicates that the Pathways sample is not representative of Latino children and families in the US, particularly those living in homes with Spanish-speaking parents.

<<INSERT TABLE 1 HERE>>

### *Measures*

*Dependent variable.* Number of specialty care services. Specialty service use included four types of specialty services (i.e. current use of behavioral intervention or modification services, occupational therapy, social skills, and sensory integration therapy). We used the number of above specialty services as the outcome variable because those specialty services are considered as commonly used for young children with ASD/DD (Odom, Collet-Klingenberg, Rogers, & Hatton, 2010; Pfeiffer, Koenig, Kinnealey, Sheppard, & Henderson, 2011), and previous study shows that Latino children with greater functional severity received fewer specialty autism-related services than White children with similar levels of severity (Magaña et al., 2016). The survey does not distinguish whether the services are received at school or in the community. Each of the services was counted if received for a total number of services.

*Independent variable.* Child's ethnicity. Children identified as Hispanic of any race were determined to be Latino. White, Non-Latino children served as the reference group.

*Moderating variable.* Two binary variables were created to characterize whether the child's medical provider responded proactively or passive/reassuringly to parent-reported concerns. Parents were asked "How did that doctor or health care provider respond to your concern?". They could endorse any or all of the following choices, which we divided into proactive (i.e., Did they conduct developmental tests?, Did they make a referral to a specialist; such as a developmental pediatrician, child psychologist, occupational, or speech therapist?, Did they suggest that you discuss the concern with the school?) or passive/reassuring (i.e., Did they say nothing was wrong, the behavior was normal?, Did they say it was too early to tell if anything was wrong?, Did they say that your child might "grow out of it?") provider reactions. Parents who received one or more positive responses were deemed to have had a proactive reaction from the child's health care provider (i.e., Any proactive responses). Parents who received one or more passive/reassuring responses were deemed to have had a negative reaction from the child's health care provider (i.e., Any passive/reassuring responses). Some parents received both positive and passive/reassuring responses. Additionally, an interaction term was created using Latino ethnicity and any passive/reassuring provider responses. In order to create the interaction term, we used a variable, which is having any passive/reassuring responses (i.e., 1 = any passive/reassuring responses, 0 = proactive responses only), given that passive/reassuring responses were not mutually exclusive with proactive responses because some parents received both positive and passive/reassuring responses.

*Covariates.* Several demographic parental, familial and child variables were included as control variables in the multivariate Tobit regression models. Covariates included family income (i.e., below or above 200% of the federal poverty level, below 200% indicates low-income and poverty levels; parental educational attainment (i.e., high school graduate or less compared to more than high school graduate); whether the family resided in an urban or non-urban area, which is a proxy of the proximal location of available services; whether the child's type of health insurance coverage was public or private; whether the child had a usual source of care; and child's age in years. The type of diagnosis was measured as ASD overall (i.e., ASD alone, ID and ASD, DD and ASD, and ID, DD, and ASD) and ID/DD only. Both the NS-CSHCN and the Pathways identify ASD, ID, and DD by parent self-report.

### *Analyses*

We used Stata 13.0 for descriptive bivariate and multivariate analyses (StataCorp, 2011). The Pathways and the NS-CSHCN datasets were linked using unique child identifiers. As appropriate, we calculated weighted percentages or means and standard errors, for demographic parent, family and child variables, and examined the statistical differences in the distribution of each variable with groups stratified by the child's ethnicity. To answer our research questions, we first used the Chi-square test, corrected for the survey design with the second-order Rao and Scott correction and converted it into an  $F$  statistic (Rao & Scott, 1984). This approach facilitated identification of statistical differences in the distribution of each variable by ethnicity for the binary measures (i.e., family income, parent education, child's type of diagnosis, and provider responses etc.). For the continuous measure (i.e., child's age in years), we estimated linear regression models and used bivariate linear regression analyses with Wald tests to obtain

adjusted F-ratios. We also used Tobit regression to model predicting mean number of specialty care services according to each variable. Tobit regression was used because the sample distribution of the number of specialty care services was left-censored at 1 ( $n = 275$ ) and it means that the dependent variable (i.e., the number of specialty care services) is not normally distributed. Therefore, linear regression is not appropriate. Additionally, we used an interaction term (ethnicity  $\times$  provider responses: specifically, any passive/reassuring responses or proactive responses only) to estimate models across ethnicity and provider responses for the series of multivariate Tobit regression models. All analyses were conducted with appropriate variance adjustment and weighting in Stata 13.0. This approach accounted for the complex sample design of both the Pathways and the NS-CSHCN. Taylor series linearization methods were employed for variance estimation, as recommended (Centers for Disease Control and Prevention, National Center for Health Statistics, State and Local Area Integrated Telephone Survey, 2011).

## Results

This analysis included children with ASD/DD who are under 11 years old and have severe limitations. We controlled for the effects of family income, low parental education, non-urban residence, non-public insurance type, lack of regular source of care, type of diagnosis and child's age in years as these family and child characteristics have all been identified as potentially associated with the use of specialty care services. The results of these analyses are shown in Table 2. There was a statistically significant relationship between ethnicity and the number of specialty care services. In other words, Latino children, who have severe limitations, were less likely to use specialty care services than White kids after controlling for socio-demographic covariates, including child's type of diagnosis.

<<INSERT TABLE 2 HERE>>

We conducted the same analyses including an interaction term (ethnicity X provider responses) to test whether Latino ethnicity had a differential impact on the number of specialty care services depending on provider responses to parental concerns. In these analyses, the provider responses did not significantly predict the number of specialty care services. However, there was an interaction between ethnicity and medical provider's passive/reassuring responses. We found that there was a statistically significant decrease of using specialty care services for Latino children with ASD/DD who have severe limitations ( $\beta = -1.63, p < .05$ ) when the parents of Latino children received passive/reassuring responses from their child's medical providers. These results are displayed in Table 2 and Figure 1. This finding suggests that provider's any passive/reassuring responses moderate the likelihood of using specialty care services for Latino children with ASD/DD. Latino children who had any passive/reassuring responses from their medical providers were less likely to use specialty services than their White counterparts among children with ASD/DD. For the measure of medical provider responses, we coded any passive/reassuring responses that were not mutually exclusive with proactive responses (i.e., Some parents received both proactive and passive/reassuring responses). Therefore, our findings show that even if their medical provider had a proactive response, having any passive/reassuring responses may negatively impact on Latino family's specialty service receipt.

<<INSERT FIGURE 1 HERE>>

### **Discussion**

Using linked data from the Pathways and the NS-CSHCN among a population of children with ASD/DD who have severe limitations, we found significant ethnic disparities in receipt of specialty care services. Latino parents reported that their children received fewer specialty

services compared to those reported by White parents. We did not find differences between Latino and White parents with respect to how the provider responded to their initial concerns. However, the interaction between ethnicity and provider response was significant, indicating that there were significant ethnic disparities in specialty service use when parents received passive/reassuring responses from their child's medical provider. More specifically, when a passive/reassuring response was used, Latino children received fewer services than White children. To the best of our knowledge, this is the first paper to examine ethnic disparities in specialty service receipt associated with medical providers' responsiveness to parent-reported concerns among children with ASD/DD.

Previous studies also found that lack of intercultural communication skills can cause passive/reassuring response among medical providers of Latino children (El-Ghoroury & Krackow, 2012; Zuckerman et al., 2013). Zuckerman and her colleagues (2015) found that medical providers have experienced difficulty recognizing signs and symptoms of ASD in Latino/Spanish primary family language due to access, communication, or cultural barriers to ASD care for Latino children. In addition, Ghoroury and Krackow (2012) underscored, through a series of case examples, the importance of providers' considering how parental descriptions of the problem, which will be culturally influenced by their beliefs and values, fit into a broader conceptualization. As such, these barriers to clear communication between parents and providers may lead to lower specialty service use among Latino children with ASD/DD.

The findings in the present study highlight the importance of the concepts used in health disparities research, *equity* versus *equality*. *Equality* can be defined as treating everyone the same no matter the circumstances and refers to the elimination of discriminatory practices. *Equity* requires that providers strive to ensure that individuals have the best possible outcomes

(Braveman, 2014). Individuals from disadvantaged groups may require differential treatment or supports depending on their context or circumstances to have the best outcomes. We did not find that providers treat Latino parents differently than they do White parents; there were no differences between the two groups in the extent to which the provider used proactive or passive/reassuring responses. However, a passive/reassuring response was related to disparities in services between the two groups. **It may be important for the provider to understand the sociocultural context of Latino parents that may explain why a passive/reassuring response from the provider could lead to lower service use.** For example, research on Latino parents of children with disabilities has found that they have limited information on autism and developmental disabilities, and services that can support their children (Lopez, Xu, Magaña, & Guzman, 2018; Magaña et al., 2013). There is a higher proportion of immigrants among Latino populations and immigrant parents are less likely to know how to navigate the system as they may come from countries that have limited disability awareness, knowledge, and services (Mercadante, Evans, Lacko, & Paula, 2009). As a result, they may express their concerns to the provider, but not have a clear idea of what condition their child may have, or what services they may need. In contrast, White parents tend to have more knowledge about autism and disabilities and in some cases may be seeking a specific diagnosis such as autism, knowing that the diagnosis will give the child access to important services (Lopez et al., 2018; Singh, 2016). Subsequently, if White parents receive a passive/reassuring response to their concern about their child, they may seek another opinion or advocate for further evaluations despite the provider's suggestion that nothing is wrong, or it is too early to tell. Furthermore, Latino parents may be likely to defer to medical providers as having the answers and not question a passive/reassuring stance from the provider (Flores, 2000). As a result, providers need to be conscious of the messages they send to parents



and how the meaning may be interpreted differently across groups. To ensure equity, providers should take a more proactive response when working with Latino parents by referring concerns for evaluation, conducting further screenings and providing more information about the system and next steps. If possible, connecting Latino parents to family navigators can be an effective way to ensure parents are provided the needed information and resources (Feinberg et al., 2016).

There are some important limitations to our study. First, all data used in this study was drawn from self-report by the child's parent or guardian, and there was no clinical corroboration of any information about the child's diagnosis or health service use. These analyses are thus subject to recall bias and social desirability bias. While self-report is an obvious limitation, previous research has found that parental report of autism and developmental disabilities has yielded prevalence estimates that are comparable to medical and educational estimates (Centers for Disease Control and Prevention, 2006, 2007). **Parent report of provider response may reflect their own recollection.** Second, these data are cross-sectional, and causality cannot be inferred. Research to examine longitudinal patterns in ethnic disparities in specialty care service receipt among children with **ASD/DD** is an important direction for future work. Third, there were no differences in the study sample between the Latino and non-Latino White families in terms of parent education or income levels. This is inconsistent with the demographic characteristics of the US population of Latinos (Centers for Disease Control and Prevention, 2015) and strongly suggests that the Latino sample here is not representative of the larger US population of Latinos. Further, this sample excluded parents who are not fluent in English. The relatively advantaged Latino children in this sample may well have had health care, service access, and treatment outcomes that are markedly better than that for Latino children with **ASD/DD** generally. Finally, the persistent findings of autism under-diagnosis among Latino children (Travers, Tincani, &

Krezmien, 2013) indicate that the Latino children in this sample are not representative of children who were never diagnosed, or who were diagnosed later. These findings therefore are highly likely to have conservative bias – outcomes for the entire population of Latino children with ASD/DD would be expected to be considerably worse because of lower rates of insurance and other barriers to access experienced by non-English speaking Latino parents.

Our findings suggest medical provider's passive/reassuring responses to parental concerns may negatively impact Latino children's specialty service receipt. Many Latino parents respect the expert opinion of medical doctors and professionals. If suggestions are made to wait and see, they may be more likely to go along with that, while White-middle class parents may be more likely to seek other opinions. Therefore, providers' guidance to parental first concerns may be a promising point of intervention for future disparity reduction efforts. Trainings to healthcare providers on effective communication with Latino parents could be useful. Further research is needed about this important relationship and how providers can respond to socio-cultural issues among Latino patients. Health care providers and policymakers must take assertive action to eliminate ethnic disparities in specialty service use depending on the medical providers' responses to parents' initial developmental concerns about their child.

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Table 1. Description of the sample of children with ASD/DD, who have severe limitations ( $N = 666$ )

Characteristic	Latino ( $N = 96$ ) %	White ( $N = 570$ ) %	Test statistic $F$
<b>Parent and Family</b>			
Family income			
<200% FPL	41	50	1.15
Parent education			
HS graduate or less	27	25	0.05
Family living in non-urban setting	15	21	1.38
<b>Child</b>			
Public insurance	49	44	0.29
No usual source of care	6	10	0.98
<b>Child's type of diagnosis</b>			
ASD overall	50	48	0.06
DD (ID/DD only)	50	52	
<b>Provider Responses</b>			
Any proactive provider responses	68	71	0.08
Any non-proactive provider responses	61	67	0.40
	$M (SE)$	$M (SE)$	$F$
<b>Child's age (years)</b>	8.65 (0.24)	8.46 (0.10)	0.58
<b>Number of Specialty Care Services</b>			
ASD overall	1.14 (0.28)	2.02 (0.13)	8.13**
DD (ID/DD only)	1.54 (0.27)	1.46 (0.12)	0.07

Note.  $N$  = unweighted count; % = weighted percent; FPL = federal poverty level; HS = high school; ASD = autism spectrum disorder. \*\* $p < .01$ .

Table 2. Weighted multivariate Tobit regression model results predicting number of current use of specialty care services among children with ASD/DD, who have severe limitations ( $N = 631$ )

	Model 1: Number of specialty care services ( $N = 631$ )	Model 2: Number of specialty care services (with interaction term) ( $N = 631$ )
<b>Characteristics</b>	Coefficients, $\beta$ (SE)	Coefficients, $\beta$ (SE)
<b>Parent and Family</b>		
Family income		
<200% federal poverty level	-0.75** (0.28)	-0.74** (0.27)
Parent education		
HS graduate or less	0.40 (0.29)	0.40 (0.28)
Family living in non-urban setting	-0.22 (0.28)	-0.17 (0.28)
<b>Child</b>		
Child's ethnicity	-0.10* (0.40)	-0.11 (0.58)
Child's age (years)	-0.10 (0.10)	-0.11 (0.09)
Public insurance	0.42 (0.28)	0.49+ (0.28)
No usual source of care	0.15 (0.40)	0.11 (0.39)
Child's type of diagnosis		
ASD overall	0.82** (0.25)	0.83*** (0.23)
<b>Provider Responses</b>		
Any non-proactive responses	-0.41 (0.24)	-0.10 (0.23)
<b>Interaction Term</b>		
Child ethnicity X Any non-proactive responses		-1.63 (0.72)*
$R^2$	.10	.11
$F$	4.16***	5.12***

Note.  $N$  = unweighted count; HS = high school; FPL = federal poverty level; \*  $p < .05$ . \*\*  $p < .01$ .

\*\*\*  $p < .001$ . Reference groups: White, parent education is more than high school, family living in urban, insurance type is private, having a usual source of care, child has ID/DD only, and proactive responses only. Model 1 compares Latino and white family responses taking the covariates into account, whereas Model 2 compares the same relationships with an interaction term that included provider responses (i.e., any non-proactive responses vs. proactive responses only).



Figure 1. The Interaction between Ethnicity and Provider Responses to Parents on Service Use