



Behavior Problems in Children With Specific Language Impairment

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Verónica Maggio, SLP, PhD¹, Nora E. Grañana, MD, PhD^{1,2},
Alba Richaudeau, MD, PhD¹, Silvio Torres, MD¹,
Adrián Giannotti, MD¹, and Angela M. Suburo, MD, PhD³

Abstract

We studied behavior in a group of children with specific language impairment in its 2 subtypes (expressive and mixed receptive/expressive). After exclusion of other psychiatric conditions, we evaluated 114 children of ages 2 to 7 years using language developmental tests and behavioral screening scales. Behavior problems appeared in 54% of the children. Withdrawn was the most frequently found syndrome in preschool children, whereas anxious/depressed and social problems were the most frequent in older children. The high frequency of behavioral syndromes in children with specific language impairment is remarkable and requires the awareness of primary attendants and specialists. Anxiety, depression, social isolation, and aggressive and rule-breaking behavior can obscure identification of the language impairment. Taking into account this relationship would improve the chances of a timely and appropriate intervention.

Keywords

language impairment, behavior problems, social behavior, communication, Child Behavior Checklist, Illinois Test of Psycholinguistic Abilities

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Specific language impairment is one of the most important communication problems affecting young children.¹ Children having this condition show “inadequate language acquisition at the expected age with otherwise ostensibly normal development.”² Thus, diagnosis is based on a mismatch between language and nonverbal abilities, which disturbs academic achievement or social communication.^{3,4} A similar definition is given by the National Institute on Deafness and Other Communication Disorders,⁵ which acknowledges developmental language disorder, language delay, and developmental dysphasia as alternative names. Specific language impairment is clearly separated from the secondary language impairment that accompanies various conditions displaying frank sensory, cognitive, or neurologic deficits.

Although exact numbers are lacking, specific language impairment seems to be one of the most common childhood learning disabilities.⁵ In the 1990s, a prevalence of 7% was shown in preschoolers,⁶ but a more recent review found a median for prevalence of 5.95%.⁷ A similar figure has been described in Sweden.⁸ By contrast, a prevalence smaller than 1% for children younger than 6 years has been recently reported in Finland.⁹ Clinical populations of children with specific language impairment show high levels of comorbidity with literacy and behavior disorders.¹⁰ The coexistence of language impairment and emotional and behavior problems has been recognized by several authors, its

rate being estimated at 50%-70%.¹¹ Behavior problems can alert about the magnitude of the communication impairment, but they can also confound the diagnosis with other conditions such as disorders of the autistic spectrum, pragmatic language impairment or attention-deficit hyperactivity disorder (ADHD). As clearly stated more than a decade ago, not every child with language impairment is a misdiagnosed case of autistic disorder.¹²

Because knowledge about the burden of behavior problems could improve attention by primary care physicians, we evaluated these difficulties in a population of consecutive pediatric patients with confirmed specific language impairment. We applied the Child Behavior Checklist^{13,14} after careful exclusion of any other neurologic, psychological, or social deprivation condition. This well-known norm-referenced test assesses

¹ Clínica CLASE de Neuropsicología, Hospital Universitario Austral, Pilar, Argentina

² Neurología Infantil, Servicio de Pediatría, Hospital Carlos Durand, Buenos Aires, Argentina

³ Medicina Celular y Molecular, Facultad de Ciencias Biomédicas, Universidad Austral, Pilar, Argentina

Corresponding Author:

Nora E. Grañana, MD, PhD, Juncal 2354-PB 3-(I 125) Buenos Aires, Argentina.
Email: ngranana@gmail.com

Table 1. Illinois Test of Psycholinguistic Abilities (ITPA): Subtests Included in This Study.

Visual reception (VR): Measures ability to gain meaning from familiar pictures.

Example: Match picture stimulus with picture from same category.

Auditory association (AA): Measures ability to relate concepts presented orally.

Example: Verbal-analogies test (eg, "Grass is green, sugar is . . .").

Visual association (VA): Measures ability to relate concepts presented visually.

Example: Relate a pictorial stimulus to its conceptual counterpart (eg, bone goes with dog).

Grammatical closure (GC): Measures ability to complete a phrase grammatically correct in an automatic way.

Example; the examiner shows 2 pictures and say: "There's one bed here, there . . . here," to which the child might respond, "There're are two beds here."

emotional (internalizing) and behavioral (externalizing) disorders.¹⁵ We also assessed sex ratios for each group, because a preponderance of boys or girls in any of the groups under study might suggest a difference in the etiopathogenesis of the different conditions.¹⁶ Hand preference, which might be underdeveloped in children with specific language impairment,¹⁷ was also examined.

Methods and Materials

We analyzed the clinical histories of children consulting the Clínica de trastornos de Atención, Lenguaje y del Seguimiento Escolar at Hospital Universitario Austral, and a speech pathologist private practice during the period 2008 to 2011. Both centers work with referrals of children with problems of attention, language, or school performance from the same community, a suburban area of medium-high socioeconomic status. Tests used in this study form part of an established routine for children attending these clinics. Our work was carried out under a protocol approved by the Comité de Investigaciones de la Facultad de Ciencias Biomédicas, Universidad Austral, 2009. Only native Spanish-speaking children with a confirmed specific language impairment were included.

Specific language impairment was diagnosed according to the tenets of the International Classification of Diseases–10 (ICD-10). This standard uses a statistical definition and requires an intelligence quotient within normal values, with at least a language test, either expressive or receptive, scoring 2 standard deviations or more below the population mean, that is, below the third percentile. In addition, it stipulates that language skills should be at least 1 standard deviation below that measured for nonverbal skills.¹⁸

For evaluation of nonverbal intelligence quotient, we used the Wechsler tests for Preschool and Primary Scale of Intelligence (version III, WPPSI III), and the Intelligence Scale for Children (Version IV),^{19,20} the Leiter-R Brief nonverbal intelligence quotient,²¹ the Beery Developmental Test of Visual-Motor Integration,²² the McCarthy Scales of Children's Abilities,²³ and the Visual Construction and Draw-a-Person.²⁴ The diagnosis of a specific language impairment requires an intelligence quotient within normal values 100 ± 15 (+ 1 and - 1 standard deviation). Children showing a developmental delay, that is, nonverbal intelligence quotient below the third percentile, did not receive this diagnosis. The presence of any other concomitant

medical, genetic, or neurologic disorder, such as sensory deafness, blindness, a definite diagnosis of autism or any autism spectrum disorder, pragmatic language impairment, or any other neurodevelopmental delay excluded the diagnosis of specific language impairment.

Language evaluation was based on the Gardner's Receptive One Word Picture Vocabulary Test, including 2 subtests: Gardner's Comprehensive Vocabulary and Gardner's Test for Expressive Vocabulary.^{25,26} In addition, we used several subtests of the Illinois Test of Psycholinguistic Abilities, 3rd Ed (ITPA-3),²⁷ to clarify the aspects of language that were difficult for a particular child. Examples of these subtests—visual comprehension, visual association, auditory association, and grammatical closure—are shown in Table 1. Impairments were classified as expressive or mixed expressive-receptive.²⁸ An expressive specific language impairment was diagnosed when children displayed Gardner's and/or Illinois expressive subtest scores 2 standard deviations or more below the population mean, that is, below the third percentile. By contrast, a mixed expressive-receptive specific language impairment was identified when children displayed receptive subtest scores of 2 standard deviations or more below the population mean.

Behavioral/Emotional problems and competencies were assessed with the Child Behavior Checklist for preschoolers and for children (CBCL/1½-5, CBCL/6-18), with a questionnaire validated for Latin American populations.²⁹ The Preschool Age test for 1½-5-year-old children uses the 7-syndrome model, including I, emotionally reactive; II, anxious/depressed; III, somatic complaints; IV, withdrawn; V, sleep problems; VI, attention problems; VII, aggressive behavior and other problems. Syndromes I to IV make up the internalizing syndromes, whereas VI and VII add to externalizing syndromes. The test for school-age children (6-18 years) includes I, anxious/depressed; II, withdrawn/depressed; III, somatic complaints; IV, social problems; V, thought problems; VI, attention problems; VII, rule-breaking behavior; VIII, aggressive behavior and other problems. Internalizing syndromes comprise groups I, II, and III, whereas VII and VIII represent the externalizing syndromes. For each problem class, children above the 93th percentile were scored as positive.

Statistics

The hypothesis under evaluation was that a significant proportion of children with specific language impairment presented behavior problems. Therefore, we used simple descriptive statistics to evaluate their frequency. As a secondary hypothesis, we tested whether different types of language impairment correlated with different frequencies or types of behavioral problem. Results were expressed as mean \pm standard error, or median (lower and upper 95% confidence interval). We used 2-tailed tests, and a 95% confidence interval was considered acceptable. Calculations were made with GraphPad Prism (GraphPad Software, San Diego, CA, www.graphpad.com).

Results

Language Impairment Diagnosis

Low scores in any one of the language tests would suffice to diagnose language impairment. However, most children showed 2 positive expressive tests. The agreement between the Gardner's test for expressive vocabulary and the Illinois Grammatical Closure was 84% in the expressive group and 92% in the mixed (expressive-receptive) Group (Table 2). In the mixed

Table 2. Children Failing the Different Expressive Tests.

	Gardner's test for expressive vocabulary	Gramm- atical closure	Gardner's Test and grammatical closure
Expressive impairment			
Infant (n = 11)	11	10	10
Kindergarten age (n = 2)	2	2	2
School age (n = 6)	5	5	4
Mixed impairment			
Infant (n = 32)	31	32	31
Kindergarten age (n = 43)	39	42	38
School age (n = 20)	19	18	17

group, most reception difficulties were identified by the Illinois Auditive Association test, which was positive in 94% of the affected children. There was high agreement between the various tests (Table 3), and most children scored positive in 2 to 3 tests (42%), or in all 4 of them (46%).

Characterization of the Population

We identified 114 children with a specific language impairment. Their ages ranged from 2.1 to 7.9 years (4.7 ± 0.1 years). Girls and Boys showed similar age distributions, 5.2 ± 0.3 and 4.5 ± 0.1 years, respectively. Taking into account developmental milestones and the behavior checklists, we considered 3 age groups: infant (2-3 years), Kindergarten (4-5 years), and school (6-7 years) (Table 4). Affected children of school age were less numerous than preschool children. This was to be expected, because language impairment is usually diagnosed at an early age.

The sex ratio indicated a predominance of affected boys over affected girls (Table 4). Infant children showed a much higher sex ratio than Kindergarten and school-age children (χ^2 for trend, $P < .05$). Right lateralization was absent in 47% of the children included in this study. Differences of dexterity between age groups were not statistically significant (Table 4).

About 17% of the children had an expressive specific language impairment. No significant differences in age or sex ratio of children were detected between these children and those having a mixed impairment (Table 4). Most children with an expressive specific language impairment diagnosis appeared in the infant group, whereas the mixed cases clustered in the Kindergarten group. This difference of proportions was statistically significant (χ^2 , $P < .02$).

Behavior Problems

About half of the children displayed behavior problems (Tables 5 and 6). This proportion was found in all age groups and could not be correlated with the presence of an expressive or a mixed impairment. No demographic differences could be detected between children with and without problems (Table 6). Moreover, both groups showed the same predominance of boys over girls and similar proportions of nondexterity. Affected

boys and girls displayed the same burden of problems: 2.25 problems per girl and 2.48 for boys.

As shown in Table 7, 80% of the preschoolers with behavior problems showed internalizing syndromes. Withdrawn was the most frequently found syndrome, appearing in 65% of children with problems. Syndromes of the externalizing domain only occurred in 57% of children with behavior problems. Children displaying more than 3 syndromes were often found. These highly troubled children usually displayed withdrawn in various combinations with emotionally reactive, attention problems, or aggressive behavior.

Internalizing problems were also the most frequently found problem in children of school age (Table 7). In this group, anxious/depressed syndrome showed in 50% of the affected children. Social issues, withdrawn/depressed, and rule-breaking behavior were also present.

Complexity of the behavioral difficulties, as reflected by the number of syndromes detected in each affected child, was higher in the mixed (2.67 ± 0.28 syndromes/child) than in the expressive group (1.50 ± 0.38 syndromes/child, Mann-Whitney test, $P < .05$).

Behavior problems could be a consequence of communication difficulties. If this were the case, more behavior problems should be found in those children that failed in a larger number of language subtests. To test this hypothesis, we looked for associations between the number of behavior problems per child and the number of failed receptive Illinois subtests in preschool children with a mixed language impairment. We did not observe any correlation between the number of failed Illinois subtests and the number of behavioral syndromes. Many children with difficulties in the 3 receptive subtests remained free of behavior problems, whereas about 70% of the children showed deficits in 3 receptive tests, irrespective of their behavioral burden (Figure 1).

Discussion

We have evaluated a sample of children with specific language impairment who attended our clinic for diagnostic purposes. Because disruptive or withdrawn manners frequently appeared as an important or even the main reason for consultation, we evaluated the importance of behavior problems in this selected sample. In addition, we investigated possible associations between the characteristics of the language impairment and the quality and load of these behavior problems. Our study, based on the Child Behavior Checklist (Achenbach's test), showed that these problems appeared in about half of the children with specific language impairment.

Prevalence of Behavioral Difficulties in Children With Specific Language Impairment

It must be stressed that the importance of social withdrawal and other behavior problems has been well established for children with language impairment associated to neurodevelopmental delay, such as low intelligence quotient or neurologic insult

Table 3. Number of Children Failing the Different Receptive Tests.

	Gardner's Comprehensive Vocabulary	Visual comprehension	Visual association	Auditive association	All tests
Infant (n = 32)	27	28	30	31	23
Kindergarten age (n = 43)	30	23	29	41	18
School age (n = 20)	12	4	6	17	3

Table 4. Characteristics of Children With Specific Language Impairment.

	Age			
	Infant	Kindergarten	School	Total
N	43	45	26	114
Age				
Range	2.1-3.9	4.0-5.8	6.0-7.9	2.1-7.9
Median	3.1	4.9	7.0	4.6
Mean	3.2	4.9	6.8	4.7
Standard error	0.1	0.1	0.1	0.1
Dexterity				
Yes	18	26	16	60
No	25	19	10	54
Sex ratio	6.7	3.8	1.9	3.8
Boys	37	36	17	90
Girls	6	9	9	24
Specific language impairment				
Expressive	11	2	6	19
Mixed	32	43	20	95

(reviewed by Rescorla et al³⁰). However, the association of specific language impairment with behavior difficulties has not yet been established, because available studies have diverse results. An early study of children with specific language impairment showed that their behavior scores (Total Behavior Problems) were not in the clinical range of the Achenbach's test; however, they were significantly greater than those from age peers with typical language development.³¹ Authors suggested that these behavior problems would most likely represent an emotional response. Behavior and social difficulties, though not necessarily within the clinical range, might be more evident in language-impaired children from low-income families.³²

On the other hand, several studies carried out in children attending schools for the language and hearing impaired showed clinically significant behavior problems in children with specific language impairment: 23% of a sample (n = 56) of school-age children,³³ 30% of a large sample (n = 71) of 5-year-old children,³⁴ and 18% of a smaller sample (n = 38) of children between 2.5 and 5.5 years.³⁵ Studies in toddlers (up to 30-35 months of age) did not show a strong relationship between language delays and behavioral/emotional problems, leading to the suggestion that these difficulties only affected older children.³⁰ Remarkably, some of these studies concluded that behavior problems were associated with the inclusion of children with neurodevelopmental delay or autism spectrum disorders.^{30,31} Other recent studies have used the Strengths and

Table 5. Behavioral Problems in Children With Specific Language Impairment.

	Age			
	Infant	Kindergarten	School	All ages
Expressive impairment	11	2	6	19
With problems	5	0	3	42%
Without problems	6	2	3	58%
Mixed impairment	32	43	20	94
With problems	19	23	11	55%
Without problems	13	20	9	45%

Table 6. Characteristics of Language Impaired Children With and Without Behavioral Problems.

Group	Problems	n	Age			
			Range	Median	Mean	Standard error
Infant	With	24	2.1-3.9	3.1	3.2	0.1
	Without	19	2.6-3.9	3.2	3.3	0.1
Kindergarten	With	23	4.0-5.7	5.0	4.9	0.1
	Without	22	4.0-5.8	4.9	4.8	0.1
	With	14	6.2-7.1	6.9	6.8	0.1
	Without	12	6.0-7.9	6.9	6.8	0.2

Difficulties Questionnaire, which evaluates behavioral, emotional and social difficulties. In the conduct subscale, fewer problems occurred at age 16 than at ages 7-8, whereas problems in the peers subscale increased over time.³⁶ As in the previous studies, however, the mean scores did not reach clinical levels of difficulty. Nevertheless, substantial peer problems have been found in a group of 16-year-old youngsters with specific language impairment.³⁷

Our figures for the coexistence of behavioral difficulties and specific language impairment were, in average, larger than those in previous reports. Moreover, we found almost the same proportion of children with and without problems in the different age groups—infant, Kindergarten, and school—suggesting that these problems would be intrinsic to the language impairment and not a reactive effect. Remarkably, the largest proportion of behavior problems appeared in the infant group. Although these figures might not represent the prevalence of behavior problems in the general population of children with specific language impairment, they certainly demonstrate the existence of this association and its relevance for diagnosis and treatment.

Table 7. Behavioral Syndromes^a Found in Children of Preschool Age.

Children with behavior problems	Number of syndromes in the expressive and mixed subpopulations							Number of children with syndromes		Syndromes/child
	Emotionally reactive	Anxious/depressed	Somatic complaints	Withdrawn	Sleep problems	Attention problems	Aggressive behavior	Internalizing	Externalizing	
Expressive (n = 6)	0	3	1	2	1	2	2	5	2	1.8
Mixed (n = 41)	15	9	9	28	7	15	17	35	25	2.4
All (n = 47)	15	12	10	30	8	17	19	40	27	2.4

^aColumns showing internalizing and externalizing problems are painted in dark and pale gray, respectively.

Table 8. Behavioral Syndromes^a Found in Children of School Age.

Children with behavior Problems	Number of syndromes in the population							Number of children with syndromes		Syndromes/child	
	Anxious/depressed	Withdrawn/depressed	Somatic complaints	Social problems	Thought problems	Attention problems	Rule-breaking behavior	Aggressive behavior	Internalizing		Externalizing
Expressive (n = 3)	1	0	1	0	0	0	1	0	2	1	1.0
Mixed (n = 11)	6	3	2	5	1	2	3	2	8	4	2.2
All (n = 13)	7	4	2	5	1	2	4	2	10	5	1.9

^aColumns showing internalizing and externalizing problems are painted in dark and pale gray, respectively.

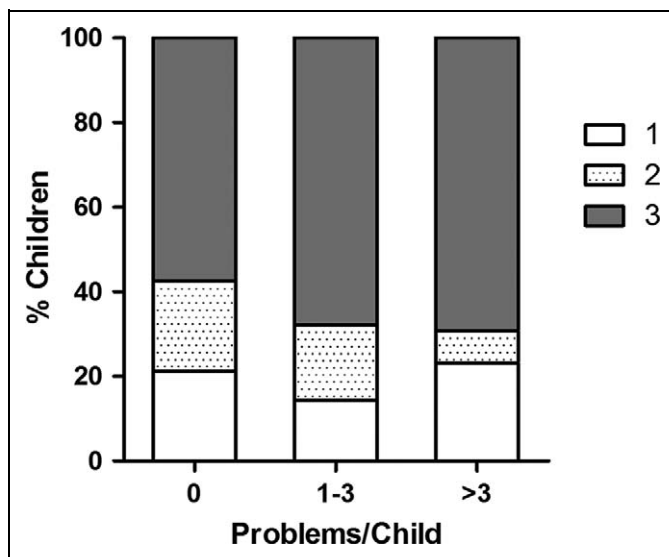


Figure 1. Bars correspond to preschool children with a mixed specific language impairment. Children were subdivided into 3 subgroups according to the number of behavior problems, 0, 1-3, and >3. Stacks refer to the number of failed Illinois subtests per child. The graph illustrates the lack of correlation between the burden of behavior problems and the extension of the language impairment.

The Nature of Behavior Problems Associated to Specific Language Impairment

Internalizing problems almost duplicated externalizing problems in children of preschool age as well as in older children. The most frequently found syndromes in preschool children were withdrawn and aggressive behavior. In children of school age, the highest frequency corresponded to anxious/depressed

and social problems together with rule-breaking behavior. In general, the behavior problems of children with specific language impairment resembled those expected in autism spectrum disorders³⁸ or attention-deficit hyperactivity disorder.³⁹ Further studies are required to evaluate the stability of these syndromes over time and their possible association to biological markers that could indicate their etiology.

There is no consensus about the predominance of internalizing or externalizing syndromes in children with specific language impairment. Some studies have found internalizing syndromes as the most frequent problems,^{11,33} whereas others have reported that the highest frequency corresponded to externalizing syndromes.⁴⁰ At least one study reported that internalizing syndromes had the same frequency as externalizing ones.³⁴ Internalizing syndromes (Teacher Behavior Rating Scale; reticence and solitary-passive withdrawal) have also been recorded as the most frequent problems in a school sample (n = 41). Comparison with studies based on other behavioral scales⁴¹ is more difficult.

Behavior Problems and Neurodevelopmental Domains

As previously acknowledged,³³ not all children had behavioral difficulties, suggesting that the relationship of these problems with language impairment is not linear and that behavior could be influenced by other—still unknown—variables. Conceivably, specific language impairment with behavior problems might represent a different condition from the impairment without such problems. At the present time, however, there are no clues about the underlying neurobiological mechanisms.

Hand preference was carefully evaluated because it might be related to the asymmetric development of the brain

hemispheres underlying language maturation.⁴²⁻⁴⁴ Moreover, functional MRI has recently shown that children with specific language impairment exhibit a significant lack of left lateralization in all core language regions.⁴⁵ Handedness has been associated to intellectual, motor, temperament, and behavioral status, and moreover, evidence supports the existence of intrauterine and neonatal pathological mechanisms, other than brain damage, leading to left hand preference.⁴⁶ Likewise, several studies have reported higher rates of specific language impairment among males than among females.^{7,16} Recent measurements of testosterone in cord blood show a correlation of hormonal levels with increased risk of specific language impairment in boys and decreased risk in girls.⁴⁷ On the other hand, studies recruiting cases from the general population reported similar proportions of boys and girls,⁶ and it has been suggested that the increased male prevalence could reflect the fact that boys attract the attention of parents and teachers more than girls.⁴⁸

In the children included in our study, hand preference and sex ratios were different from the standard patterns. Almost half of our population lacked right hand preference. A large proportion of nondexterity (58%) appeared in infants, but it was also found in 38% of the school-age children. Thus, it cannot be attributed to lack of maturation. Remarkably, the sex ratio was 6.7 in infants and 1.9 in children of school age (boys to girls). The higher sex ratio of infants compared to that of older children probably implies that language impairment became evident earlier in boys than in girls.

We found the same burden of behavior problems in boys and girls, suggesting that the male prevalence would not depend on the different attention elicited by boys and girls.⁴⁸ Because hand preference and sex ratios were similar in children with and without behavior problems, the causes of these difficulties must be sought in other, still unidentified developmental domains.

Behavior Problems in Expressive and Receptive/Expressive (Mixed) Specific Language Impairment

Only 17% of the children in our population displayed an expressive language impairment. A similar proportion (20%) was also found in a sample of ages 3.5-9.5 years ($n = 86$).⁴⁹ A larger proportion (30%) was described in a school sample ($n = 41$, ages 6-13 years).⁴¹ Probably, much larger samples would be required to evaluate the prevalence in the general population. In our study, most children with an expressive impairment belonged to the infant age group. About 34% of the children in the infant group had an expressive impairment, as in another large sample ($n = 103$) of children aged 18-35 months.³⁰ In all these groups, the predominance of children with a mixed impairment contrasts with the predominance of expressive impairment described in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*. To our knowledge, there is no justification for this phenomenon. However, comparison of the available evidence and our own results allows speculating that higher mixed/expressive ratios might be found in the clinical setting than in the general population.

A similar explanation has been given to account for the heritability of specific language impairment in different scenarios.⁵⁰

Behavior problems were found in 42% of children with an expressive impairment and in 55% of children with a mixed impairment, a not statistically significant difference. However, children with a mixed impairment displayed more clinical syndromes, indicating a higher complexity of their behavioral disorder. Several studies have indicated that children with receptive difficulties are more likely to have social and behavioral difficulties than those with only expressive problems.^{51,52} Within the receptive group, however, we could not find any correlation between behavior problems and specific language deficits. These associations, however, have been identified by other investigators. Girls with more severe receptive problems appear with higher levels of solitary-passive withdrawal than girls with less severe language problems.⁴¹ By contrast, children with less severe receptive language impairment exhibit more sociable behavior than their peers with more severe impairment.⁴¹

Communication Problems as the Basis for Behavioral Difficulties

Association of specific language impairment with behavior problems has been explained in several ways. Classical descriptions include limited information processing as a cause of difficulties in language learning and social communication; rejection from others, including their peers, that might result in limited opportunities for social learning; and primary deficits in the social cognition domain that would translate into oral language.⁵³

Two frameworks (or models) have been proposed to understand the relationship between the language impairment and the behavioral comorbidities: the Social Adaptation Model considers that behavior problems of language-impaired children reflect social adaptations to their language limitations. The second model, the Social Deviance Model, considers that differences between children with language impairment and nonaffected children reflect differences in the underlying traits that guide children's socioemotional development.¹¹ These authors studied a small sample ($n = 17$) and found a large proportion of children showing behavior problems at a clinical level. Because parents and teachers gave different behavioral ratings, they favored the Social Adaptation Model.¹¹ In our study, the lack of association between behavior and biological markers such as handedness and sex supports this hypothesis.

Adolescents with an earlier story of specific language impairment display receptive language problems together with emotional health difficulties.⁵⁴ Moreover, those with emotional problems at 7 years of age also have increased anxiety at 16 years. Authors suggested, however, that behavior problems would not be a direct result of impoverished communicative experiences.⁵⁴ In consonance with these findings, our observation of the same frequency of behavior problems in the infant age as in children of Kindergarten and school age suggests the involvement of developmental factors unrelated to social

environment. Because we can assume that rejection and intolerance would increase in the Kindergarten and school years, and without denying the importance of the social environment, our data suggest that rejection would not be the sole explanation of behavior problems.

Association and Differential Diagnosis With Other Nosological Entities

A diagnosis of specific language impairment can be hindered by other possibly related impairments. One of them is late language emergence, a condition of significant delay in language development that is observed in about 19% of 2-year-olds.⁵⁵ Many “late talkers” will normalize their language skills by 3-4 years, although some might still show some language impairment during adolescence.⁵⁶

Language impairment seems to be a key feature of autism and, vice versa, autism has some remarkable similarities to language problems in specific language impairment. Previous studies have evidenced that autism-like symptoms, such as poor social relations, aloofness, affectless behavior, and unusual responses to stimuli, appear in about half of the children with persistent language difficulties.⁵⁷⁻⁶⁰ Moreover, some studies suggest that children who present with autism spectrum disorders and attention-deficit hyperkinetic disorder have a similar neuropsychological and early language development profile as children who present with a suspicion of early preschool language delay and are shown at school age to have autism spectrum disorders or attention-deficit hyperactivity disorder.⁶¹ Although similarities might suggest a common pathogenesis, these are different clinical entities. Children with an autistic spectrum disorder with language impairment display weaker functional communication and more severe receptive language difficulties than children with specific language impairment.^{12,62} However, these conditions might recognize a common neural substrate.⁶³

Conclusions

Behavior problems were highly prevalent in specific language impairment-affected children; they were equally frequent in children of infant age as in older children. Moreover, children with an expressive disorder displayed behavior problems as often as those children with a mixed impairment. Withdrawn was the most frequently found behavior problem in younger children, whereas children of school age usually displayed anxious/depressed and social problems.

Professionals and caregivers should be aware of these behavior problems: first, because they further reduce the quality of life of more than half of children with specific language impairment and their families; second, because in some children they might serve as an alert for an early diagnosis; and third, because they might induce an autism spectrum disorders misdiagnosis, as they often include isolation, social problems, and even rule-breaking behavior.

The need for screening of speech and language delay in primary care practice has already been emphasized.⁶⁴ Our findings further stress that language impairments should be methodically explored to discriminate specific language impairment from other pathologies, particularly when they are accompanied by behavior problems. It is important for caregivers and others to be aware of this relationship in order to consider appropriate assessment of children referred for language impairment and to advocate for appropriate early intervention.

Author Contributions

VM assessed the language and wrote the manuscript. NEG developed the hypotheses, led the clinical team, and wrote the manuscript. AR performed neuropsychological assessment of patients. ST analyzed the data. AG performed clinical and behavioral assessment of patients. AMS analyzed data and wrote the manuscript.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Ethical Approval

This work was approved by Comité de Investigaciones de la Facultad de Ciencias Biomédicas, Universidad Austral.

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