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The influence of siblings on the development of social skills in children who are deaf or hard of hearing

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**THE INFLUENCE OF SIBLINGS ON THE DEVELOPMENT OF SOCIAL
SKILLS IN CHILDREN WHO ARE DEAF OR HARD OF HEARING**

**by
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**An Independent Study submitted in partial fulfillment of the
requirements for the degree of:**

Master of Science in Deaf Education

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Program in Audiology and Communication Sciences**

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**Approved by:
Johanna G. Nicholas, Ph.D., Independent Study Advisor**

Abstract: A study observing the influence of siblings or lack thereof, birth order and vocabulary skills on social skills of adolescent cochlear implant recipients using ratings from their parents.

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Introduction

Social skills are those skills that allow appropriate social interaction with others. They are based on a set of verbal and nonverbal behavior standards, derived from one's specific society or culture. Social skill development begins at birth with the first parent-child interactions. As children grow, they learn to socialize through experiences with others in addition to their parents. Some skills include the knowledge of appropriate behavior in different situations, the formation of reciprocal relationships, the regulation of one's emotions and initiating and maintenance of play. Social skills play a critical role in a child's development and continue throughout life, facilitating acceptance and successful personal relationships.

For those children who are seen by adults (usually teachers) as being deficient in social skills, specific training may be warranted. Consistent implementation of any curriculum over time will likely increase children's knowledge and skills of that particular subject. Research shows that implementation of a social skills curriculum often yields successful outcomes of increased social competence in children (Goldstein, English, Shafer & Kaczmareck, 1997). Terpestra and Tamura agree that the development and implementation of these types of social interventions are beneficial and a vital component of education for all young children (Terpestra & Tamura, 2008). The elements of social skill intervention programs vary. Differences include the number of students enrolled, participation of adults (i.e. teachers, support staff and families),

materials, presentation and frequency of training. The combination of these program variables may yield differing outcomes. Interventions range from small group instruction of 2 or 3 students to school-wide programs. Terpestra and Tamera suggest that different programs may be appropriate for different populations. Examples of skills targeted in a program often include: willingness to provide peer support, self-control, independence and conflict resolution. Successful intervention programs provide positive behavior management and involve role play (Kemple, 2004), are designed for younger children (Terpestra & Tamera, 2008), and, we speculate, are adjusted to the level of the students. Goldstein et al. (1997) concluded from his research that social skills education can positively affect social behaviors of both typically developing children and those with disabilities.

The Role of Siblings in the Development of Social Skills

Positive influences of siblings

Normally, children's social skills develop as a result of their interactions with others. These interactions allow children to learn about themselves and others, and furthermore aids in cognitive and emotional development (Brody, 1998). Several studies show that siblings play a positive role in this development. Schneyer (1997) reports that children benefit from siblings in that they allow for early socialization that can begin to prepare them for more successful peer interactions. Other studies have found that siblings contribute to children's development of social skills and their understanding of relationships because they are together all of the time (Parke & Buriel, 1998) and as a result carry over to peer relationships (MacKinnon, Starnes, Volling, & Johnson, 1997; McCoy, Brody, & Stoneman, 1994). In addition, it has been suggested that

children become proficient in their use of social skills because of these frequent interactions between siblings (Condrón & Downey, 2004).

Kitzman suggests that parents are the most important influence in relationship development but agrees that having siblings contributes to better (more satisfying) later relationships (Kitzman, 2002). Siblings also help in the development of social skills because the child can observe a variety of family interactions. For example, children with multiple siblings have the advantage of observing interactions among each other. Similarly, parent-sibling interactions provide the opportunity for children to learn to cope with relationships such as “differential treatment, rivalry and jealousy” (Dunn, Slomkowski, & Beardsall, 1994; Kitzzmann, Cohen & Lockwood, 2002). A child’s social learning is mainly developed through play, so these social interactions also provide benefit by allowing them the opportunity to practice initiating and maintaining play with their siblings (Dunn & Dale, 1984; Kitzzmann, Cohen & Lockwood, 2002).

Negative influence of siblings

Does the number of siblings have any negative effect on social skills? Would an especially large number of siblings be detrimental? Condrón and Downey (2004) suggest this might be true. Through their research, they found that sibling benefits decrease as the number of siblings increases. They found that those with one or two siblings displayed an increased benefit in the development of interpersonal skills but found that greater sibships showed no difference in social ability over “only” children.

Children without siblings

Do children without sibling(s) have poorer than average social skills? Research results appear to be mixed on this point. A study by Fussell, Macias and Saylor (2005) found that the presence or absence of a sibling showed no significant difference for either behavior problems or social skills. Another recent study found that self-reported social competence, social leaderships and use of relational aggression were similar in children with and without siblings. Similarly, the number and quality of mutual friendships did not differ due to the presence or absence of a sibling (Kitzmann, Cohen & Lockwood, 2002). On the contrary, others suggest that only children exhibit negative social behaviors as a result of being an only child. Condron and Downey (2004) reported that children's interpersonal skills show a statistically significant advantage for one or two siblings as compared to having no siblings.

Additional findings by Kitzmann, Cohen & Lockwood (2002) found that only children were "less popular and less well accepted." Results reported that aggression, victimization and passive-withdrawal behaviors were significantly worse with only children than those with siblings. Suggestions of this "social disadvantage" could be due to their lack of conflict management skills.

The Development of Social Skills in Children who are Deaf

A lot of research shows that siblings have a positive effect on social skills. Do these relationships affect children who are deaf in the same way? Communication is what is most affected by deafness and varies between sibships. The effectiveness of communication between children who are deaf and their siblings relies heavily on the children's ability to understand each other (Stoneman & Brody, 1993).

There are conflicting results from several studies investigating birth order effects of communication between children who are deaf and their siblings. When researching birth order effects on children with disabilities and their siblings, Fussell, Macias & Saylor (2005) initially hypothesized that older, typically developing siblings would be a positive role model in the life of a child with a disability. However, their results showed that siblings did not have a significant effect on the social skills or behavior development of children with disabilities.

Bat-Chava & Martin conducted a research study in 2002 investigating birth order effects on social skills between deaf and hearing siblings resulting in very different conclusions. In this study two groups were investigated: the child who is deaf as an older sibling and the child who is deaf as a younger sibling. They found that sibships were more positive when the child who is deaf was the older sibling than if the deaf child was the younger sibling. This led them to suspect that when the oldest child is deaf, the young hearing sibling is simply born into the family's typical routine. The second-born hearing child naturally joins the flow of life and does not have to adapt from a previous lifestyle like older hearing siblings do. These children tend to have much greater success in communicating with their deaf sibling and are more equally involved in the family. Oftentimes, the younger siblings join the speech therapy sessions, and grow in their communication skills as well. In contrast, older hearing siblings tend to look at the situation as unfair. They perceive that the child who is deaf receives much more attention than his/her older brother(s) and sister(s). Additionally, it was reported that older siblings struggled to communicate with their deaf sibling (Bat-Chava & Martin, 2002).

Studies show that verbal communication has a significant impact on social skills. Bat-Chava and colleagues found that these skills are highly correlated in both children who are deaf

or hard-of-hearing and their normative sample of typically developing children (Bat-Chava, Martin, & Kosciw, 2005). The assessment of any child's social skills is difficult and can be very subjective. Anita and Kreimeyer (1997) agree with this challenge and further suggest that children who are deaf or hard-of-hearing are especially difficult to assess because of their language delays and their possible difficulty of self expression.

It is possible that an association exists between personal emotional adjustment and social skills. "In several studies in the past it was found that deaf children had a rate of emotional adjustment difficulties that were 3 to 6 times that of the normally hearing population." (Meadow and Trybus, 1979). Bell (2007) found that the emotional adjustment difficulties of children who are deaf are not the same in every situation. Children who are deaf who use sign as their mode of communication and enroll at a residential school for the deaf, an environment where everyone uses sign language, have been found to be socially adjusted in ways that are comparable to typically hearing peers in general education classrooms. All participants in the study had hearing parents, however, the majority of students in this group were likely to live away from their parents. When comparing students who are deaf and those who are hard of hearing in public schools, she found that they were similar in that they had the lowest self esteem. This was in comparison to both normal hearing children in public schools and children who are deaf in residential schools.

The children in Bell's study were in general education settings with hearing children and likely lacked typical speech, communication and social skills, leading to low self esteem (Bell, 2007). This poor self-esteem and frustration possibly carries over into the home, especially if communication isn't a positive experience with family members. A similar study found that

children with hearing impairments educated in the general education classroom often reported feeling lonely (Stinson & Whitmire, 1992) perhaps by their inability to produce intelligible speech (Bat-Chava et al. 2005). The preference to socialize with others with hearing impairment (Roberts & Rickards, 1994) was also reported.

Children who are deaf or hard-of-hearing often have options to help improve their audition and speech skills. The advancement in technology of hearing devices and intense language programs have allowed for significant improvements in language acquisition. Because a large majority of parents with children who are deaf or hard-of-hearing are hearing themselves, many opt for oral education in order for their children to learn to listen and speak so they can be fully integrated into mainstream society. Cochlear implants have become a commonly accepted device for children who are deaf and have facilitated significant gains in spoken language measures for recipients. In 2003, Incesulu et al. conducted a study with the parents of children one year post-implantation. Parent questionnaires showed that 27 of 33 parents reported their children's socialization improved compared to pre-implantation. Parents reported their children to be more self-reliant, self confident and have better socialization skills (Incesulu, Armagan, Vural & Erkam, 2003).

A longitudinal study by Bat-Chava, Martin, & Kosciw published in 2005 reported on social skills in children who are deaf or hard-of-hearing, with pure tone averages ranging from 62-120 dB in the better ear. The majority of children (85.3%) used oral language as their primary mode of communication. At the onset of the study, all children used hearing aid amplification. Communication, Daily Living Skills, Socialization and Motor Skills, all subdomains of the Vineland Adaptive Behavior Scales (Sparrow, Balla & Cicchetti, 1984) were used to evaluate

each child. Following the first testing, 29 of 41 children received cochlear implants. The second testing occurred approximately 7 years after the first testing and an average of 5.5 years post-implantation of the cochlear implant recipients. At the first testing, Communication and Socialization scores showed students who had less a severe hearing loss had significantly greater communication and social skills compared to those with a profound hearing loss. At the second testing, children who had received a cochlear implant did not exhibit the same delays in Communication and Socialization as they had during the first testing, and received similar to those of children with hearing aids. In the areas of Socialization and Daily Living Skills, mean scores of the children with cochlear implants surpassed those with hearing aids. This difference however, was not significant. Each group made gains in each skill, but in some cases, the gains made by the cochlear implant users (with greater initial hearing loss) were greater than the gains made by the children with lesser degrees of hearing loss. The authors concluded that receiving the cochlear implant greatly increased both social and communication skills (Bat-Chava, Martin, & Kosciw, 2005).

Verbal communication for anyone with a type of hearing impairment can have its challenges. Since there are deficits in language acquisition, social pragmatics and interactions with others, social skills will likely be affected. Research to date reveals that socialization skills are often delayed and that the presence or absence of siblings may be a contributing factor.

Purpose of the Present Study

The purpose of the present study was to determine if the presence or absence of siblings predicted social skill competencies in adolescents who are deaf. We were further interested in

whether there were correlations between social skills and birth order, number of siblings, receptive and expressive vocabulary and the understanding of connected discourse.

METHOD

Participants

Participants were part of a nationwide study of cochlear implant recipients who received an implant in their preschool years. The total number of participants was 131. All participants were diagnosed with severe to profound hearing loss and were fitted with a least one cochlear implant. The sample was made up of 68 (52%) females and 63 (48%) males. The average age of subjects was 15.15 years and ranged from 9 to 18 years old. Table 1 lists the distinction of subjects by age.

The sample included 27 (20%) “only” children and 104 (80%) children with a sibling(s). The number of siblings ranged from 0-3, and the average number of siblings was 1.23. Birth order ranged from 1-4 and consisted of 68 (52%) first born, 44 (34%) second born, 16 (12%) third born and 3 (2%) fourth born children. Several siblings were reported as the same age and were assumed to be twins. When calculating birth order, twins were categorized as one birth and “only” children as a first born child. As a way of characterizing those participants who had siblings who were close in age, as opposed to separated by several years, siblings were categorized as having a “close” siblings or not. “Close” siblings refers to within two years of age. The presence or absence of close siblings was calculated for siblings both older and younger than

the participant child as well as either older or younger. The sibling constellations are described in Table 2.

Procedure

Scores from Social Skills Rating System (SSRS; Gresham & Elliot 1990), Expressive One Word Vocabulary Test Third Edition (EOWVT-III; Brownell 2000), Peabody Picture Vocabulary Test Third Edition (PPVT-III; Dunn & Dunn, 1997) and the Understanding Spoken Paragraph subtest scaled scores from Clinical Evaluation of Language Fundamentals Fourth Edition (CELF, Secord, Semel & Wiig, 2003) were obtained as part of a larger data collection effort at a cochlear implant “research camp.” Descriptions of the tests and rating forms used are described below.

The SSRS is a social skills assessment designed “to screen children suspected of having significant social behavior problems and aids in the development of appropriate interventions for identified children.” This assessment is available in different forms. The forms used for this data collection was the Elementary Parent form developed for kindergarten through sixth grade and the Secondary Parent Form developed for children grades seven to twelve. This form is divided into positive and negative domains titled Social Skills and Problem Behaviors, respectively. Parents were instructed to review statements of specific behaviors and social skills and rate their child according to their own observations.

The SSRS is divided into four subscales titled Cooperation, Assertion, Responsibility and Self-Control. Each statement on the rating form corresponds to specific behaviors of these subscales. Cooperation was defined as “helping others, sharing materials, complying with rules and directions.” The authors define Assertion as “initiating behaviors such as asking others for information, introducing self and responding to actions of others.” Responsibility is defined as the “ability to communicate with adults and regard for property or work.” Finally, Self-Control, “exhibits behaviors that emerge in conflict situations such as responding appropriately to teasing, and in nonconflict situations that require taking turns and compromising.” There are two response categories for the Social Skills domain: *How Often* and *How Important*. *How Often* responses are based on a three point scale and are numbered 0 to 2, with 0 referring to “Never,” 1 to “Sometimes” and 2 to “Very Often.” Responses on the *How Important* responses are based on a three point scale as well and are numbered 0-2 in which a 0 is referred to as “Not Important”, 1 as “Important” and 2 as “Critical.”

The Problem Behavior domain is further divided into two subscales titled *Externalizing* and *Internalizing Behavior*. Each statement included in this section corresponds to one of the two specific behaviors. *Externalizing behaviors* are defined as “inappropriate behaviors involving verbal or physical aggression toward others, poor control of temper and arguing.” *Internalizing behaviors* are defined as “behaviors indicating anxiety, sadness, loneliness and poor self-esteem.” Parents rate *How Often* the behaviors are observed and are based on a three point scale. Scales are numbered 0 to 2, with 0 referring to “Never”, 1 as “Sometimes” and 2 as “Very Often.”

Normative data for Social Skills Rating System were derived from a national sample of 1,770 typically hearing individuals from kindergarten through twelfth grade and was provided in various tables stratified by gender, broad age groups and handicap.

The PPVT-III (Dunn & Dunn, 1997) is an assessment designed to measure receptive vocabulary. The examiner presents a stimulus word orally, and the child selects an illustration, from a set of four, that depicts the meaning of the word. Stimulus words include gerunds (verbals), nouns and descriptors. Normative data for this test was derived from a national sample 2,725 typically hearing individuals ages 2 1/2 to over ninety years of.

The EOWVT-III (Brownell, 2000) is designed to measure oral expressive vocabulary. The examiner shows the child a picture and the child is asked to name it. Normative data for this test was derived from a national sample of 2,327 typically hearing children ages two to eighteen years.

The CELF-4 (Secord, Semel & Wiig, 2003) is an assessment for the “identification, diagnosis and follow-up evaluation of language and communication disorders.” The subtest titled Understanding Spoken Paragraphs which is the only component of the CELF used in this study, measures the student’s understanding of orally presented paragraphs. The questions target the main idea, details, sequencing, inferential and predictive information. Normative data for this test was derived from a nation-wide sample 4,500 typically hearing individuals ages five to twenty-one years old.

RESULTS

The mean, standard deviation, and range was calculated for the scaled score of all tests and rating scales administered, and are shown in Table 3. They were calculated separately for grade- school age children (“Ten Year Olds”) and for teen-aged children, as well as for all participants combined.

Does the presence of siblings influence social skills?

An Analysis of Variance (ANOVA) statistical test was performed to explore whether or not there was a significant difference between the average score on the SSRS achieved by the children with siblings (N = 104) as compared with the average score of those children who had no siblings (N = 27). The mean scores were found to be not statistically significant different from each other.

Next, we decided to take a closer look at the social skills scores, both overall test scores (SSRS- Total) and the scores on the various sub-tests of this measure (Cooperation, Assertion, Responsibility, and Self-Control), as well as the Problem Behavior scores of this measure. Rather than continue with the sibling predictor of whether or not the child was an “only” child (a categorical variable), we decided to look at whether Birth Order within the family constellation and the Number of Siblings were significantly correlated with any of the scores from the social skills rating form. The resulting correlation matrix revealed a significant positive correlation between Birth Order and the SSRS-Total score ($r = .18, p \leq .05$), meaning that the children who were younger of larger families tended to have higher overall social skills. Further, there was a significant correlation between Birth Order and one of the sub-test scores, Cooperation ($r = .17, p \leq .05$).

There were no significant correlations between Birth Order and any of the Problem Behavior scores. Further, there were no significant correlations between the Number of Siblings a child had and any of the Social Skills or Problem Behavior measures.

To follow up on the effect of Birth Order on social skills, a regression was computed to determine the strength of this variable as a predictor. Results revealed that Birth Order predicts 3% of the variance in the SSRS-Total scores, making it a small but significant predictor of children's skills.

The role of language

A correlation matrix was produced in which the various language measures were examined for their association with the total SSRS scores. The results are displayed in Table 5. While the language measures were all highly correlated with each other, all but the USP were only very modestly correlated with social skills. The correlation between the USP and the overall SRSS is .19 ($p < .05$) which is a small, but significant positive correlation.

Problem Behaviors

A correlation matrix was produced which examined the relations between the various Problem Behavior scores and characteristics of the child (gender) and his or her family constellation (Birth Order, Number of Siblings, Number of Adults in household, Presence of Close Older Sibs, Presence of Close Younger Sibs, and Presence of Any Close Sibs. We found a moderate correlation between internalizing kinds of problem behaviors and the likelihood that a child has younger siblings. The results are displayed in Tables 6 and 7.

Using an Analysis of Variance procedure we looked at both gender and whether or not the child was an “only” child in the family as predictors of problem behaviors. Neither of these categorized variables were significant predictors.

DISCUSSION

Much of the literature is conflicting regarding the role of both siblings and birth order the development of social skills amongst typically hearing children as well as children who are deaf or hard-of-hearing. Perhaps this is due to varied personalities among children, communication between family members and friends, social skills intervention and special language instruction for children who are deaf or hard-of-hearing. The evaluation of social skills in any population, typically hearing or not, can be very subjective and difficult to assess. However, in the present study, one notable finding is that most of the children were rated as well-adjusted by their parents. Mean scores were most often well within the average range on all social skills measures.

Results also showed that younger children of larger sibships had a tendency to do better on the SSRS than older children or “only” children. Possible explanations for this finding could be that they had multiple older models for well-developed social skills. Other possibilities may include the access to more observations of conflict resolution and positive socialization between siblings as well as increased direct conflict resolution and socialization of the participant child. This finding seems consistent with the conclusion of previous researchers (Dunn et. al, 1994; Kitzmann et. al, 2002) showing that children with siblings are provided with more frequent parent-sibling interactions that allow the opportunity for children to learn to cope with relationships and are faced with more relationships challenges. These opportunities may possibly contribute to the higher social skill development in these children.

Finally, results showed that even those participants with lower vocabulary scores were socially well-adjusted, unlike Bat-Chava and colleague's findings (2005) that higher language levels, which include vocabulary, facilitated better social skills. A plausible explanation for our finding may be that all children who are deaf or hard-of-hearing are in multiple daily social situations with typically hearing individuals and those with hearing impairment and have learned to communicate and socialize with the vocabulary that is in their repertoire. Although small, a significant correlation was found between Understanding Spoken Paragraphs and social skills. Children typically socialize through conversations, so we suspect that understanding the whole thread of the conversation, similar to understanding paragraphs, leads to a better understanding of the situation rather than the occasional unfamiliar word.

There are several limitations to this study. Social skills assessments are very subjective in nature and these skills can be difficult to quantify in any population. Outcomes of this questionnaire were also from parent ratings and it is possible that parents rate their child as having more positive social skills than the way an examiner or teacher might rate the same child. Finally, the characteristics of participants in this study were very narrow (orally educated only) and may not reflect the typical social skills of the national population of deaf individuals.

Suggestions for further research include the assessment of a comparable sample rated by classroom teachers. Also, with universal newborn hearing screenings, early identification and the advancement in technology, it would be interesting to see a longitudinal study of social skills research of younger individuals to see whether social skills are more of a problem at earlier ages and lower language levels. Social skills research of children with varied degrees of hearing loss,

amplification and from multiple programs in addition to deaf individuals with cochlear implants are suggested as well.

Conclusion

Our research has shown positive and encouraging outcomes indicating that children who are deaf and have cochlear implants are likely be socially well-adjusted individuals similar to their typically hearing peers and we hope they will to continue to be as they enter adulthood and throughout their adult lives.

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Table 1: Number (percent) of subjects according to age.

Age	9	10	11	14	15	16	17	18
Number of subjects	2 (1%)	20 (15%)	1 (<1%)	1 (<1%)	3(2%)	78(60%)	19(14%)	7(5%)

Table 2: Sibling constellations.

Average number of siblings	1.23
Range of siblings	0-3
Number of only children	27 (20%)
Number of subjects with siblings	104 (80%)
Birth order range	(1-4)
Number of first born subjects	68 (52%)
Number of second born subjects	44 (34%)
Number of third born subjects	16 (12%)
Number of fourth born subjects	3 (2%)
Number of subjects with close, younger siblings	23 (18%)
Number of subjects with close, older siblings	25 (19%)
Number of subjects with younger or older close siblings	48 (37%)

Table 3: Means, standard deviations, and ranges for test scores, by age group.

	Teens	Ten Year Olds	Combined
Total SSRS	105.17	100.96	104.43
	15.25	14.12	15.09
	(56-131)	(66-121)	(56-121)
Cooperation	13.07	13.26	13.11
	3.54	2.49	3.37
	(1-20)	(8-18)	(1-20)
Assertion	14.67	15.22	15.23
	3.69	2.89	3.56
	(5-20)	(9-19)	(5-20)
Responsibility	16.48	12.65	15.81
	2.52	2.77	2.95
	(6-20)	(6-17)	(6-20)
Self-Control	14.72	12.91	14.40
	3.94	3.13	3.86
	(3-24)	(7-19)	(3-24)
Total PB	98.67	105.31	99.52
	12.86	12.08	12.91
	(84-143)	(<85-133)	(84-143)

	4.34	3.87	4.26
PB Internal	2.52	2.30	2.48
	(0-12)	(1-10)	(0-12)
	3.09	3.70	3.20
PB External	2.30	2.30	2.36
	(0-12)	(1-11)	(0-12)
EOW	91.48	100.50	93.01
Standard Score	12.34	20.28	14.31
	(54-130)	(<55-143)	(54-143)
Peabody	92.39	88.96	91.79
Standard Score	18.09	22.63	18.92
	(49-128)	(44-135)	(44-135)
CELF	7.63	6.78	7.48
Understanding	3.10	4.40	3.36
Spoken	(1-15)	(1-14)	(1-15)
Paragraphs			

Table 4: Birth order and parent rating of social skills.

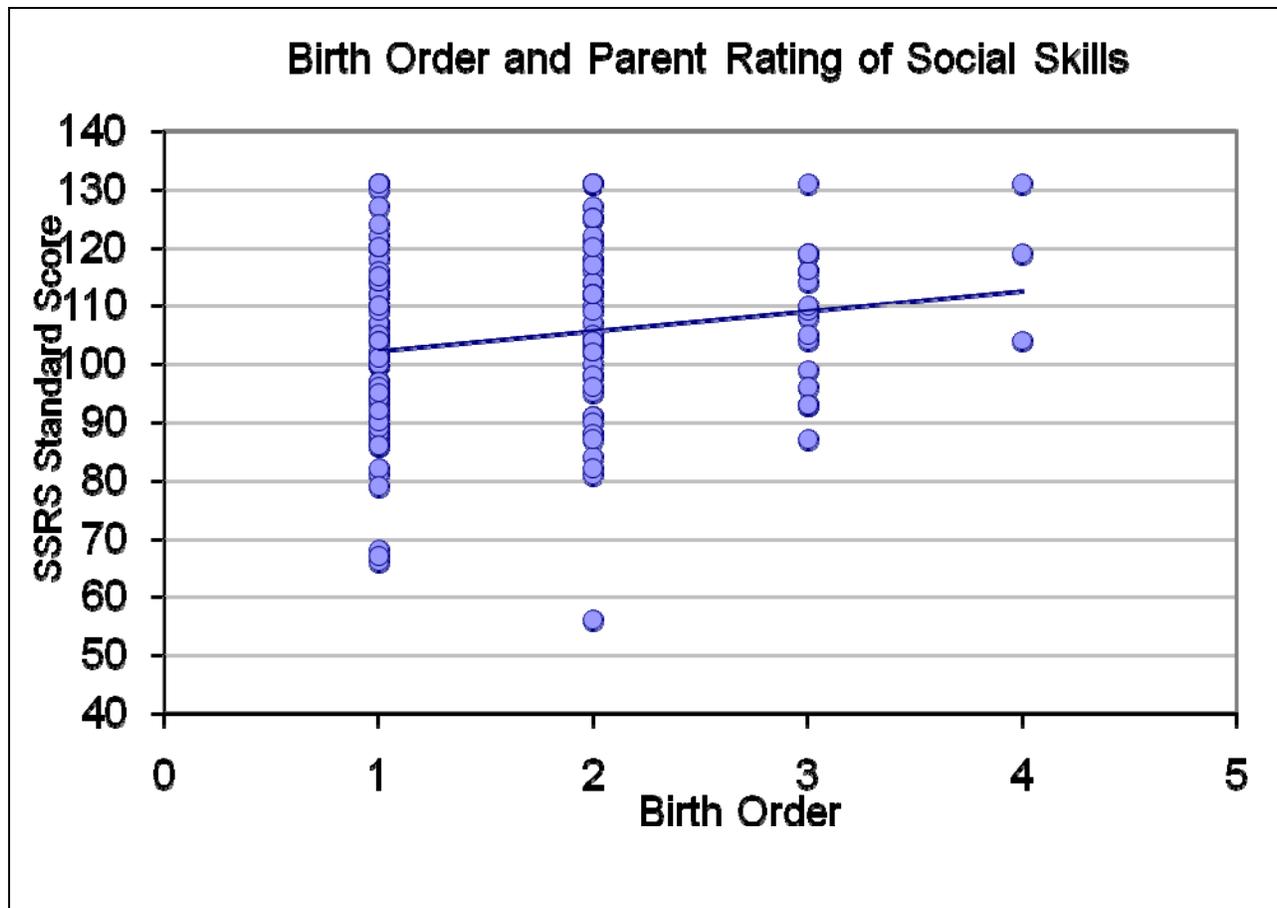


Table 5: Correlation matrix of the language measures and total SSRS scores.

	EOW	PPVT	USP	SSRS
EOW	1.00	.81	.61	.15
PPVT	-	1.00	.70	.15
USP	-	-	1.00	.19
SRSS	-	-	-	1.00

Table 6: Correlation matrix of family constellation and Problem Behavior scores

	PB ss	PB external	PB internal
Birth Order	.02	.01	.04
N Sibs	.03	.10	-.08
Total Adults	-.02	.07	-.07

Table 7: Correlation matrix of close siblings and Problem Behavior scores

	Subject 2 years older	Subject 2 years younger
PB ss	-.14	.05
PB external	.03	-.06
PB internal	-.25	.16
Subject 2 years older	1.00	-.10
Subject 2 years younger	-.10	1.00