



Down Syndrome Gender Differences in Production First and Foreign Language

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Abstract

Many researchers have identified that most Down Syndrome children have language delays. Also, many studies have clarified the inherent difference between normal and Down syndrome children to specify the reasons behind the delay. The current study tries to answer the question is there a difference between female and male children with Down syndrome? Are females or males better at the production of a first and a foreign language? It is hypothesized that there are no differences between the two genders in the production of the first and foreign languages. The study is followed the descriptive method and it is used the questionnaire as a tool to collect the data. The questionnaire was answered by 78 parents of Down syndrome children. The results have been analyzed and it has shown that there are differences between females and males for the female in production of the first as well as the foreign language in all the ages. This results due to damage of the left hemisphere of the brain therefore the females with this Syndrome are better at producing the language than the males because the right hemisphere would take the production role instead of damaging one.

Keywords: *Down Syndrome (DS); Gender; Production Language; First Language; Foreign Language*

Introduction

The Problem of the Study

Descriptive accounts of the development of children with Down's syndrome almost always draw attention to the delays to be expected in their speech and language development. Despite a wide range of individual differences, most children are late in saying their first words, their vocabulary grows more slowly than in ordinary children and although they use the same range of two-word phrases as all children, they have difficulty in mastering the many rules for talking in grammatically correct sentences (Rondal,1988: 43). Down Syndrome (DS) have cognitive deficits specifically in verbal short-term memory, executive functions and phonological processing have been documented (Miller 1988: 19). The evidence about the influence of auditory deficiencies is contradictory. Some researchers report that a

significant relationship between language production and auditory problems does not exist (Miller, 1988). A question that has been raised is whether the cognitive deficit present in the etiology of DS causes part of the word production problems. The comparison of language skills in other cognitive deficits that involve similar levels of intellectual disability has allowed us to conclude that language problems cannot be exclusively due to cognitive delay. It remains to be explained why DS implies greater damage in word production than comprehension. This difference might be due to larger requirements for production such as retrieval of information, storage of this information for its correct production within an appropriate grammatical, syntactical, and semantical context, and finally, its articulation. Speech production of individuals with Down syndrome may be related to differences in oral structure and function (Miller & Leddy, 1998; Stoel-Gammon, 1997). Structural differences include a small oral cavity with a relatively large tongue and a narrow, high-arched palate. Missing, poorly differentiated, or additional muscles characterize facial structures, and differences in nerve innervation have been found as well (Miller & Leddy, 1998). These differences are thought to account, in part, for poor speech intelligibility through dysarthric factors such as reduced speed, range of motion, and coordination of the articulators. In addition, compared with typically developing children, boys with Down syndrome show differences in the structure of the lips, tongue, and velopharynx, and are less skilled at speech motor functions and coordinated speech movements involving the lips, tongue, velopharynx, and larynx (Barnes, Roberts, Mirrett, Sideris, & Misenheimer, 2006). Symptoms of childhood apraxia of speech also have been reported (Rupela & Manjula, 2007; Kumin, 2006; Kumin & Adams, 2000). The combined effect of talking in telegraphic utterances and poor pronunciation often makes young people with Down's syndrome difficult to understand, especially if they are trying to talk to strangers out in the community rather than to those familiar with them at home or in school (Buckley & Sacks 1987).

Additional characteristics commonly associated with Down syndrome that may affect language development are otitis media and its effects on hearing abilities, as well as deviations in oral motor structures and function. Otitis media, a middle ear infection, is quite common among the Down syndrome population due to features including narrow auditory canals, cranial facial differences, and subtle immune deficiencies (Roberts et al., 2007). According to Roberts et al. (2007) otitis media may not severely affect language learning abilities in typically developing children; however, children with Down syndrome are more susceptible to these complications because having an intellectual disability places them at risk for language learning deficits. Another characteristic that may prove troubling for speech and language development in children with Down syndrome is their oral structure. According to Roberts et al. (2007), there are a variety of differences observed in the oral cavity of children with Down syndrome. Among these structural variations, a small oral cavity, a narrow high arched palate, an irregular dentition and an enlarged protruding tongue can be examined. Along with internal structural differences, children with Down syndrome also display muscle abnormalities of the face, both of which are possible contributing factors to a decrease in speech intelligibility (Roberts et al., 2007).

Down syndrome children's language development is simply delayed at first. Up to the age of 4, their language age is consistent with their mental age. A child with Down's syndrome may show greater abilities in their cognition than in linguistics ability (Harley, 2008: 81)

Talking - comprehension and production Most children with Down syndrome are late in starting to talk. The average age for the first spoken word is about 18 months and for the first ten words, the average is about 27 months. Like other children, children with Down syndrome start using two words together when they have a productive vocabulary of about 50 different words. This occurs at around 37 months on average they use only two and three word utterances, increasing the chance of producing those words clearly enough for them to be recognized

Table: Acquisition of speech and language in DS

Milestones	Age range in months		
	TD children ^o	Down syndrome*	Present study
cooing	0-3	0-5	2-12
babbling	4-6	10-12	3-12
First word	7-12	11-15	12-48
Phrase level	12-24	36-40	18-72
Sentence level	24-36	41-59	36-60

TD- Typically developing, ^oBowen, 1998, *Layton, 2004.

Speech Most children with Down syndrome find all aspects of speech production difficult. While a number of studies indicate that babies with Down syndrome babble normally, they seem to struggle to say single words as early or as clearly as their typically developing peers. They then find producing three and four words in a sequence difficult. Even words that they can say clearly as single words, become less clear when produced as part of a sentence. There are almost certainly many complex reasons for these speech production difficulties, most of them needing further research. However, it is likely that many, if not most, children with Down syndrome discover, ressed with targeted remedial strategies. While the literature is full of studies that describe the delays and difficulties observed in the children’s speech and language development, and a small number which try to identify the reasons, there are very few studies which have evaluated the effectiveness of speech and language interventions. There is an urgent need for further research in this area, that they are more likely to be understood if (Buckley,1999: 13).

The Aim of the Study

The study aims at exploring the differences between male and female down syndrome children of production the first and foreign language.

The Hypothesis of the Study

It is hypothesized that there are no differences between the two gender in acquiring the first and foreign language. So, the null hypothesized is adopted.

The Questions of the Study

The current study tries to answer the question is there differences between female and male children of down syndrome? Do female is better or male is better in acquiring the first and second language? It is hypothesis that there are no differences between the two gender in production the first and foreign language.

Significant of the Study

The current study tries to identify the differences between the genders with down syndrome children because the importance of using the language or speech, we are able to have control over our lives. We can ask for what we want or need, tell people how we feel, ask for information, share our pleasures and our worries, make friends and enjoy our social lives. If we have only limited ability to talk we will be more isolated from others and our social and emotional lives impoverished (Buckley,2016:1). The current study tries to shied the light on unrecovered subject dealing with crucial and sensitive

category of people. The parents and the responsible persons for this category should know who could deal with Down Syndrome. The impact of developing the language has direct positive effect on the learning of Down Syndrome children and inclusive their life.

Definitions of the Basic Terms in the Study

Down Syndrome (DS) is a genetic disorder caused by an extra copy of chromosome 21, and it is the leading cause of intellectual disability (Lubec & Engidawork, 2002). Cognitive deficits (Roizen, 2002) specifically in verbal short-term memory (Naess, Halaas Lyster, Hulme, & Melby-Lervag, 2011); executive functions (Carlesimo, Marotta & Vicari, 1997); and phonological and phonological processing (Brock & Jarrold, 2004) have been documented.

Method of the Study

The study has prepared an open -ended questionnaire, the questionnaire electrical send to the down syndrome parents to response. The questionnaire is included three parts , firstly general information as the following (the sex, the age, type of the case) the second part of the questionnaire is the questions as the following (the level of the child according to production the language, if the child speaks another language, the parents evaluation of speaking skill of their child, finally, the third part of the questionnaire is given to the parents as an open question about what are their problems in speaking of their child.). the questionnaire is exposed to jury members from the specialists to insure its face validity.

The Sample of the Study

The sample of the study is (78) down syndrome children’s parents participate 34 female and 44 male , the children age from (1-10) from male and female. The sample is taken from Al- Mahaba brotherhood Center (Caritas Iraq). The sample is included both sexes as shown in the table 2 below.

Table (2) the sample of the study

Row Labels	Count of the sex of Down sample
Female	34
Male	44
Grand Total	78

The age of the sample is included from 1 year to above 10 years as the table below is shown.

Table (3) the Age of the Sample

Age	No.
years 3-1	9
years 6-3	42
and above 6-10	27
Grand Total	78

Results

The results have shown that there is strong correlation relation between the sex and the production of language skills which is 0.843 . Also, the females children have better ability in production the language than the males as the table below has shown.

Table (4) The Differences between females and males in production the language

sex	Level of speaking	number
Female	Cannot speak	15
	not clear Speaking	1
	Speaks just words	8
	Speaks with sentences	20
	Fluent speaking	4
Total		48
Male	Cannot speak	8
	not clear Speaking	18
	Speaks just words	16
	Speaks with sentences	2
	Fluent speaking	1
Total		45
Grand Total		78

There are only two children produce Kurdish language and 15 children are produced English language as a foreign while the most sample speak Arabic language as the table below is shown

Table (5) The ability of the sample to speak other language

Other language	No.
Just the mother language	61
English language	15
Kurdish language	2
Grand Total	78

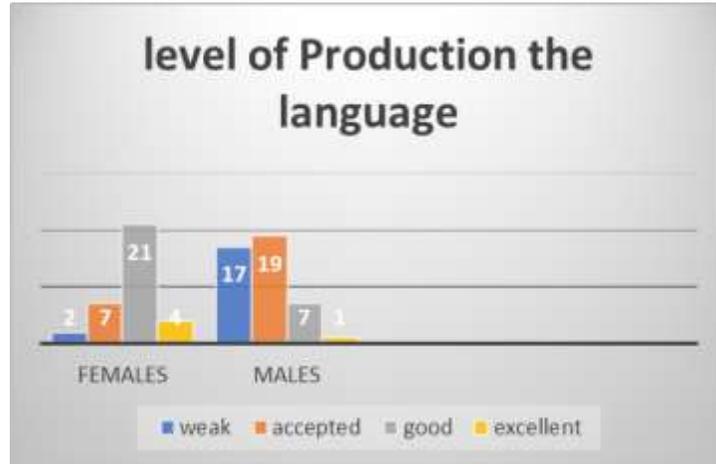
According the evaluation of parents' children level the table below is shown that, 22 of females sample are good in production the language while most males 19 are accepted in production the language from the parents ' view point and 17 others are weak. While 2 females are weak in production the language

Table (6) The sample's Level of Speaking

sex	Level of speaking	number
Female	weak	2
	accepted	7
	Good	21
	Excellent	4
Total		34
Male	weak	17
	accepted	19
	Good	7
	Excellent	1
Total		44
Grand Total		78

The bars are revealed the differences between both sex in production the language and the acceptability of parents' females down syndrome against the parents' males. There are only two females are weak, seven are accepted, 21 are good and four are excellent. While the table shows that seventeen of the sample from males are weak, nineteen are accepted, seven are good and only one is excellent.

Table (7) Level of Production the language



Also, the differences between females and males are obviously clear from the table 8 which shows the Mean of females 2.94 while the males Mean is 1.33. forevermore, the standard Deviation for females is 1.435 and the males is 0.805. Thus, there are differences between the females and Males' Down Syndrome in production the first and foreign language.

Table (8) Mean and Standard Deviation of Males and Females' Down Syndrome

Report The Differences of Females and Males in Mean and Standard Deviation

	females production the language	males production the language
Mean	2.94	1.33
N	48	45
Std. Deviation	1.435	.805

The t-test score of females is 13.180 while the 17.304 under the degree of freedom 47, 44 which represented the females and males' production the language. That revealed the differences between them.

Table (9) The Score of T-test of the Sample

One-Sample Test

	t	df	Sig. (2- tailed)	Test Value = 0		
				Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
females production the language	13.180	47	.000	2.938	2.52	3.35
males production the language	17.304	44	.000	1.333	2.06	2.61

Discussion of The Results

It is probable that the poor intelligibility leads to distortions in conversational style even in early childhood, with a tendency for adults to ask closed questions, to prompt and fill in for the child and generally to be too helpful, preventing the children from learning how to do better for themselves. Changes in styles of responding to the children when they are at a two-word level of production could contribute to their difficulty in learning grammar and syntax. Below 18 months of age language comprehension and production skills were equal to non-verbal cognitive ability for all the children, but from 18 months on an increasing proportion of the children showed delay in language production relative to their language comprehension and their language comprehension was equal to their non-verbal cognitive ability. The proportion of children showing this profile increased with age, accounting for 60% to 75% of the children over 18 months of age. The remaining 40% to 25% of children with Down's syndrome had no delay in their expressive language skills relative to their level of language comprehension. (Buckley, 1993: 7). Additional characteristics commonly associated with Down syndrome which revealed from other studies that may affect language development are otitis media and its effects on hearing abilities, as well as deviations in oral motor structures and function but This study has revealed that females Down Syndrome are better than males in production the first and foreign language this results are against Buckley (1993) and Anilkumar, etal (2017).

The study is assumed that there is a damage of left hemisphere of the brain because females' right hemisphere is responsible for language production if there is damage in the left one, both hemispheres are responsible for language production in females.

In conclusion, the left hemisphere controls speech, comprehension, arithmetic, and writing. The right hemisphere controls creativity, spatial ability, artistic, and musical skills. Thus, the left hemisphere could be damaged in the Down Syndrome children while the right hemisphere is working instead the left one in female so this is the finding of the study. Also, as approved there are many activities are absented that the left hemisphere is responsible for.

Finally, the null hypothesis has rejected because there are significant differences between Down Syndrome genders in acquiring the first and foreign language. Also, the questions of the study are answered that there is differences between female and male children of down syndrome and female is better of male in acquiring the first and second language.

Related Studies

Anilkumar, etal (2017)

In this genetic study had shown that the male and female ratio for 37 individuals was same and all 37 sample of children had delayed speech and language development. The study shows many genetic reasoning for delaying the acquiring of the language regardless the differences between male and female. The mean age for cooing and babbling was found to be 6 ± 3.3 and 8 ± 2.95 months respectively. The mean age for acquisition of first word in total cases was found to be 1.7 ± 0.74 years. A delay in production of first word was observed in 73% patients (mean age of 2.0 ± 0.7 years), whereas 27% have acquired the first word following the normal pattern of language developmental. As far as Receptive and expressive language skills are concerned, expressive language age was delayed than receptive language age in about 82% individuals, whereas in 18% cases receptive language age and expressive language age were same. All children except two demonstrated verbal mode of communication. Only one patient had communication through differential cry. One patient was reported to have self-talk. With regard to Speech skills, 13.5% individuals with DS had misarticulation. In connection with Oro-motor skills, 74% cases were reported to have high arched palate, 10 cases had macroglossia, 2 patients showed micrognathia, one had bifid tongue, two dental abnormalities like missing of teeth and misalignment and decayed teeth and

protruded tongue noticed in 4 cases. Vegetative skills like blowing, biting and chewing were affected in 17% cases. The Table 1 shows acquisition of speech and language milestones in individuals with Down syndrome. In addition to the data shown in the table, one patient had attained cooing at the age of 24 months. Another patient had first word at the age the 48 months and phrase level at the age of 84 months. The genetic study showed 85.7% individuals with pure trisomy of chromosome 21, translocation Down in 5.7% and mosaicism observed in 8.6% cases. (Anilkumar, etal :2017, 3).

Recommendation

Further studies should be conducted in the field of anatomy and biological of down syndrome children to prove the finding of the study.

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