

# Prevalence and Social Influences of Delayed Language Development in Preschool-Age Saudi Children

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**Abstract:** *Introduction and Aim: The development of language skills and communication is one of the most important tasks of early childhood. It is key to early learning and a building block of social skills. This study was designed to measure the prevalence of language delay and to assess the social factors impacting the prevalence of language delay among preschool-age children in the Eastern Province of Saudi Arabia. Method: A cross-sectional descriptive study was conducted from November 2016 to March 2017; a total of 1235 children aged from 3 to 5 years were involved. This study collected data through a self-administered questionnaire completed by parents, containing 2 parts: Part 1—Arabic-Ages and Stages Questionnaire, third edition (A-ASQ), to assess the prevalence of language delay; and Part 2—Sociodemographic factors, social factors, and social interaction factors. Results: The overall prevalence of language delay was 24.5 percent. Language delay was more common in 3-year-old children ( $p<0.001$ ), children of male sex ( $p<0.001$ ), and children with a family history of language delay ( $p=0.001$ ). There were statistically significant relations between language delay and the time of less than 2-hours mothers spent with children ( $p=0.008$ ), time children spent playing alone or with electronic devices ( $p=0.011$ ), and time children spent watching TV (with the effect appearing at more than 2 hours per day;  $p=0.001$ ). Conclusion: Language delay among preschool-age children has a high prevalence in the Eastern Province. Language development is a useful indicator of a child's overall development, including cognitive development, and language delay can negatively affect a child's self-esteem, school achievement, and future career. These results thus justify the need for prevention, early detection, and treatment.*

**Keywords:** Language delay, social factors affecting language acquisition, screen media effects, preschool children

## 1. Introduction

Speech and language development is considered to be a useful indicator of a child's overall development and cognitive ability [1]. Speech is the verbal production of language, whereas language is the human communication faculty, through which emotions, ideas, information, and beliefs can be shared. Language includes both receptive language (understanding) and expressive language (the ability to convey information, feelings, etc.). Developing children typically master the fundamentals of language and speech by preschool age. As language and speech skills serve an essential role in learning and building social relationships, delays in this age cohort might affect several domains of function, including but not limited to future reading and school performance [2]. Language delay implies that the child is developing language in the correct sequence but at a slower rate than expected, whereas language disorder suggests that the child's language ability is qualitatively different from what is typical [8].

The prevalence of primary language delays has been estimated to be anywhere between 3 and 16 percent, based on various studies of pre-schoolers in the United Kingdom, Canada, New Zealand, the United States, and Hong Kong [8]. Language disorders are in this sense one of the most common developmental disorders. They can be classified as delay, dissociation, or deviation [5].

Language development is significantly affected by genetic predisposition and the level of spoken language stimulation in the child's environment [4]. Several factors can be involved with language delay or disorders; some are non-modifiable risk factors, such as sex/gender,

prematurity, genetics, or diseases such as autism, mental disability, genetic and chromosomal syndromes, and attention deficit and hyperactivity disorder [15, 17, 25, 26, 28]. Other factors, which we are more interested in for our research, are modifiable: they include poor or impaired social interaction between parent and child, time spent on TV and other electronic devices, and broader lack of linguistic opportunities in the environment [18, 29, 41, 43, 44]. One study done in Egypt in 2012 showed that the main risk factors were birth injuries, instrumental delivery, prematurity, neonatal infections, and social deprivation [15].

These studies show that it is may be difficult to predict at time of diagnosis which children with isolated expressive language delays will catch up to their peers without treatment, which will catch up with treatment, and which will have persistent language delay even with treatment [6, 7, 8]. The problem is that most children with language delays or disorders have not been diagnosed before school entry [9]; therefore, early intervention is recommended, because some studies show that without intervention, preschool children with language delay at increased risk of learning disabilities at school age [10].

Children with language impairment have about four or five times greater risk of poor reading outcomes in school in comparison with their peers without impairment. As a result, deleterious effects of their impairment will persist into adulthood if there is no early intervention [13]. Adults who were diagnosed with speech and language disorders in childhood, especially language disorders, are more likely to be unemployed and may hold lower-skilled jobs than unaffected individuals [20].

Studies of delayed language development show that it has strong negative effects on children's personal and social life and academic achievement. Unfortunately, although studies of its prevalence have been conducted in many locations globally, we do not know how common the problem is in Saudi Arabia, since there are no previous studies in the kingdom. We want this study to address this gap.

Early intervention services can improve children's language skills and reduce the functional impact of persistent delay. Therefore, identifying children with language delay in the preschool period should be a priority for primary health care clinicians. Thus, in addition to prevalence of language delay, our study looks at how it relates to social interaction in Saudi pre-schoolers, as basic data for the development of interventions. The current study purpose is to estimate the prevalence of language delay and its association with social factors in preschool children in Saudi Arabia.

## 2. Methodology

A community-based analytical cross-sectional study conducted among preschool-age children in the Eastern Province, Saudi Arabia, from November 2016 to March 2017. We included children aged 3 to 5 years whose parents agreed to participate in the study and excluded children with diagnoses of conditions known to cause language delay (e.g., autism, mental retardation, hearing loss, recurrent otitis media, degenerative and neurological disorders, preterm). We considered Delayed development in the communication domain based on the Ages and Stages Questionnaire classification [19] as the dependant variable. While the independent variables were the sociodemographic characteristics of children and their families (age, sex, birth weight, number of family members, and education level of parents), and the social interaction factors (time child spends with mother, father, and brothers and sisters and use of electronics and television watching).

We collected data from parents of children between 3 and 5 years old through a self-administered questionnaire, in two parts. The first part, the A-ASQ (Arabic Ages and Stages Questionnaire) is a developmental screening questionnaire adapted to the Arabic language from the original ASQ (Ages and Stages Questionnaire), a standardized developmental screening test for young children aged 4 to 60 months, developed by Squires, Potter & Bricker [11]. It has 'good to acceptable' internal consistency (Cronbach's coefficient alphas from .49 to .87) and strong test-retest and inter-observer reliability. Scores are grouped into three categories based on pre-set thresholds: (a) under thresholds call for further assessment, (b) near thresholds call for monitoring, and (c) above thresholds suggest the child is on schedule developmentally [19]. The second part of the questionnaire covers sociodemographic data and social interaction factors.

## 3. Results

This study shows the prevalence of language delay among preschool-age Saudi children and the relation of the social and demographic factors to it. A sample of 1235 children was analysed. Around one-third of the samples were 3 years old (38.4 percent), and only 10.2 percent were 4 years old; the remainder were 5. Around half of the samples were male (54.2 percent). The majority were Saudis (93.4). Almost two-thirds were born vaginally (65.7 percent). The majority of children had no family history of language delay (82.3 percent). The majority also had siblings (80.1 percent). More than one-third of the samples were the first child in the family (38.6 percent). The majority of them lived with their parents (82.3 percent), and about two-thirds had no extended family living with them (62.6 percent). Almost half of fathers (50.3 percent), and two-thirds of mothers (65 percent) had a university education. In 56 percent of families, only the father worked, while in 41 percent both parents were working. The majority of parents were married (95.7 percent). Almost equal percentages of mothers worked and did not (48.5 percent and 48.7 percent, respectively). Forty percent of the children stayed in kindergarten when their mother was working. Most of the families use Arabic at home (72.8 percent). The majority of mothers spent more than 4 hours with the child per day (87.9 percent), and around half of fathers spent between 2 and 4 hours with the child per day (44.1 percent). The majority of children spent most of their time at home (87.1 percent); about two-thirds of the children spent most of their time with their mothers when they were at home (60.4 percent), while almost one-third of children spend most of their time playing with other children (29.3 percent). Nearly half of the children watch less than 2 hours of TV per day (54.4 percent), while more than two-thirds of children play with electronic devices for less than 2 hours daily (68.6 percent).

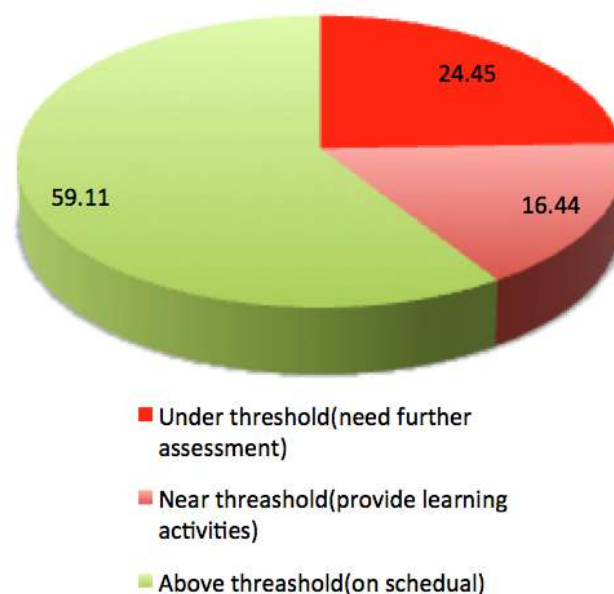


Figure 1: Prevalence of language delay in preschool children

As Figure 1 illustrates, prevalence of language delay among respondents' children is as follows, according to the respondents: 24.5 percent are in need of a referral for further assessment; 16.4 percent have been designated as

needing therapeutic learning activities and continuous monitoring, and 59.1 percent have non-delayed language development.

**Table 1:** Cross-tabulation between demographic factors and language delay (n=1235)

Demographic factors	Overall prevalence						X <sup>2</sup>	p
	Need further assessment		Provide learning activities		On schedule			
	Frq.	%	Frq.	%	Frq.	%		
Child age:								
Child age range by year:								
3 (2.83–3.16)	159	33.5	82	17.3	233	49.2	49.06	<b>&lt;0.001</b>
3.5 (3.25–3.66)	23	15.0	20	13.1	110	71.9		
4 (3.75–4.16)	34	27.0	19	15.1	73	57.9		
4.5 (4.25–4.66)	29	19.3	29	15.5	129	69.0		
5 (4.75–5.5)	57	19.3	53	18.0	185	62.7		
Total	302	24.5	203	16.4	730	59.1		
Sex:								
Male	194	29.2	110	16.5	361	54.3	18.936	<b>&lt;0.001</b>
Female	106	18.9	91	16.2	364	64.9		
Total	300	24.5	201	16.4	725	59.1		
Nationality:								
Saudi	281	24.6	194	17.0	668	58.4	5.416	0.067
Non-Saudi	17	21.0	7	8.6	57	70.4		
Total	298	24.3	201	16.4	725	59.2		
Mode of delivery:								
Vaginal	183	22.6	129	16.0	496	61.4	11.613	<b>0.020</b>
Caesarean	103	27.2	71	18.8	204	54.0		
With instrument	15	34.9	2	4.7	26	60.5		
Total	301	24.5	202	16.4	726	59.1		
Family history of language delay:								
Yes	72	33.5	39	18.1	104	48.4	13.861	<b>0.001</b>
No	228	22.7	160	16.0	615	61.3		
Total	300	24.6	199	16.3	719	59.0		

Key: Frq.=frequency; %=percentage

Table 1 shows a significant association between prevalence of language delay and child's age ( $p < 0.001$ ), with higher prevalence in 3-year-olds, and by sex ( $p < 0.001$ ) with higher prevalence in males and in children with family history of language delay ( $p = 0.001$ ). There are also significant differences by delivery mode, with more delay in babies delivered with forceps ( $p = 0.020$ ) and by family history of language delay ( $p = 0.001$ ). There is no association between language delay and nationality or mother's smoking.

Table 2 shows a statistically significant association between the prevalence of language delay and not having siblings ( $p = 0.043$ ), mother's education at a secondary or high school level, ( $p = 0.042$ ), and parents' work status ( $p = 0.042$ ). In contrast, there is no significant association between birth order, child living with parent, large family, father's education level, or mother's marital status.

**Table 2:** Cross-tabulation between social factors and prevalence of language delay (n=1235)

Social factors	Overall prevalence						X <sup>2</sup>	p
	Need further assessment		Provide learning activities		On schedule			
	Frq.	%	Frq.	%	Frq.	%		
Siblings:								
Yes	227	23.1	160	16.3	597	60.7	6.305	<b>0.043</b>
No	74	30.2	42	17.1	129	52.7		
Total	301	24.5	202	16.4	726	59.1		
Child birth order:								
First	122	25.6	77	16.2	277	58.2	6.557	0.585
Second	63	23.2	37	13.6	172	63.2		
Third	43	24.4	38	21.6	95	54.0		
Forth	33	25.2	21	16.0	77	58.8		
Other	41	22.9	30	16.8	108	60.3		
Total	302	24.5	203	16.5	729	59.1		
Child living with his parents:								
Yes	248	24.6	172	17.1	587	58.3	2.177	0.337
No	51	23.6	29	13.4	136	63.0		
Total	299	24.4	201	16.4	723	59.1		
Child living with extended family:								
Yes	108	23.6	79	17.3	270	59.1	0.587	0.746
No	191	25.0	121	15.8	453	59.2		
Total	299	24.5	200	16.4	723	59.2		
Father's education level:								
Uneducated	1	25.0	0	0.0	3	75.0	17.203	0.070
Primary	9	27.3	5	15.2	19	57.6		
Secondary	18	35.3	9	17.6	24	47.1		
High school	93	29.2	60	18.8	166	52.0		
University	142	22.9	98	15.8	381	61.4		
Higher degree	39	18.9	31	15.0	136	66.0		
Total	302	24.5	203	16.5	729	59.1		
Mother's education level:								
Uneducated	0	0.0	1	50.0	1	50.0	18.892	<b>0.042</b>
Primary	5	25.0	1	5.0	14	70.0		
Secondary	12	34.3	7	20.0	16	45.750.2		
High school	72	30.6	45	19.1	118	60.9		
University	187	23.3	126	15.7	488	65.5		
Higher degree	25	18.0	23	16.5	91	59.1		
Total	301	24.4	203	16.5	728	59.1		
Parents' work status:								
Only father works	188	27.3	119	17.3	381	55.4	12.249	<b>0.042*</b>
Only mother works	3	23.1	2	15.4	8	61.5		
Both parents work	106	20.6	80	15.5	329	63.9		
Both parents do not work	4	30.8	0	0	9	69.2		
Total	301	24.5	201	16.4	727	59.2		
Mother's marital status:								
Married	289	24.5	192	16.3	698	59.2	11.624	0.071
Divorced	5	15.6	7	21.9	20	62.5		
Widowed	0	0.0	1	16.7	5	83.3		
Separated	8	53.3	3	20.0	4	26.7		
Total	302	24.5	203	16.5	727	59.0		

\*Fisher's Exact Test, Key: Frq.=frequency; %=percentage

**Table 3:** Cross-tabulation between social interaction factors and prevalence of language delay (n=1235)

Social interaction factors	Overall prevalence						X <sup>2</sup>	p
	Need further assessment		Provide learning activities		On schedule			
	Frq.	%	Frq.	%	Frq.	%		
Responsible person when mother at work:								
Housekeeper or babysitter	32	24.4	28	21.4	71	54.2	15.944	0.194
Father	7	36.8	2	10.5	10	52.6		
Siblings	5	25.0	3	15.0	12	60.0		
Grandmother	34	21.4	29	18.2	96	60.4		
Kindergarten	44	18.0	32	13.1	168	68.9		
Inapplicable	147	25.8	98	17.2	324	56.9		
Other	5	19.2	4	15.4	17	65.4		
Total	274	23.5	196	16.8	698	59.8		
Language used by family at home:								
Arabic	238	26.7	148	16.6	506	56.7	14.298	0.74
English	3	25.0	1	8.3	8	66.7		
Both Arabic and English	56	17.7	50	15.8	211	66.6		
Total	297	24.2	200	16.3	728	59.4		
Time the mother spends with the child:								
Less than 2 hours	12	60.0	2	10.0	6	30.0	13.928	<b>0.008</b>
2 to 4 hours	32	25.0	21	16.4	75	58.6		
More than 4 hours	257	23.8	179	16.6	643	59.6		
Total	301	24.5	202	16.5	724	59.0		
Time the father spends with the child:								
Less than 2 hours	85	26.3	62	19.2	176	54.5	7.983	0.092
2 to 4 hours	128	23.9	73	13.6	335	62.5		
More than 4 hours	83	23.3	66	18.5	207	58.1		
Total	296	24.4	201	16.5	718	59.1		
Place where child spends most of the day:								
Home	276	25.9	170	15.9	621	58.2	10.906	<b>0.028</b>
Daycare or kindergarten	16	12.7	23	18.3	87	69.0		
Other	8	25.0	4	12.5	20	62.5		
Total	300	24.5	197	16.1	728	59.4		
When at home, the child spends time with:								
The mother	189	25.7	114	15.5	431	58.7	7.814	0.452
The father	13	33.3	7	17.9	19	48.7		
Brothers and sisters	80	21.6	65	17.5	226	60.9		
Another family member	11	20.0	8	14.5	36	65.5		
Other	6	35.5	4	23.5	7	41.2		
Total	299	24.6	198	16.3	719	59.1		
When the child at home, child usually:								
Watching TV	75	24.9	50	16.6	176	58.5	37.542	<b>&lt;0.001</b>
Playing by electronic devices	97	28.5	70	20.6	173	50.9		
Playing with other children	56	15.6	49	13.7	253	70.7		
Playing alone	71	31.8	32	14.3	120	53.8		
Total	299	24.5	201	16.4	722	59.1		

Key: Frq.=frequency; %=percentage

As Table 3 shows, there is a significant relationship between language delay in preschool children and time the mother spends with the child, with language delay statistically higher in those who mothers spend less than two hours with them (p=0.008); and between language

delay and the way the child spends most of the day, with delay higher in those who play alone or play with electronic devices and lower in those who play with other children (p<0.001).

**Table 4:** Cross-tabulation of between screen media time and prevalence of language delay (n=1235)

Screen media time	Overall prevalence						X <sup>2</sup>	p
	Need further assessment		Provide learning activities		On schedule			
	Frq.	%	Frq.	%	Frq.	%		
Number of hours watching TV:							11.280	<b>0.024</b>
Less than 2 hours	162	24.4	95	14.3	408	61.4		
2 to 4 hours	105	23.0	83	18.2	269	58.9		
More than 4 hours	30	30.0	24	24.0	46	46.0		
Total	297	24.3	202	16.5	723	59.2		
Number of hours playing with electronic devices:							13.084	<b>0.011</b>
Less than 2 hours	187	22.7	125	15.2	511	62.1		
2 to 4 hours	77	25.5	57	18.9	168	55.6		
More than 4 hours	28	37.3	14	18.7	33	44.0		
Total	292	24.3	196	16.3	712	59.3		

Key: Frq.=frequency; %=percentage

As Table 4 shows, there is a statistically significant relationship between language delay in preschool children and number of hours watching TV, with delay higher in those who watched TV for more than 4 hours (p=0.024), and between language delay and number of hours the child uses electronic devices, with language delay higher in those who use these devices for more than 4 hours (p=0.011). In contrast, no statistically significant association was found between person responsible when the mother is at work, presence of housekeeper, language used by family at home, language used by the housekeeper, time father spent with the child, or time housekeeper spent with the child.

#### 4. Discussion

The aim of the study was to estimate the prevalence of language delay in Saudi preschool children and to identify the factors associated with it. A total of 1235 children aged between 3 and 5 years were involved in this study; data collected from their parents were analysed. The results yield findings in four areas, which will be discussed in turn.

First, the research revealed that the prevalence of language delay among preschool-aged children in the Eastern Province of Saudi Arabia is 24.5 percent. A similar cross-sectional study done in Egypt published in 2012 showed less prevalence, at 9.4 percent [15]; however, another study from Egypt in 2012 found that 19.7 percent of children had communication disorders without apparent cause [25]. Similarly, one study in the United Arab Emirates, in 2004, showed less prevalence of language delay among 3-year-old children, at 9.9 percent [17]; but higher prevalence was found in another study in the UAE, in 2017, at 46 percent (who required further assessment and possible intervention) in children aged 2–3 years [30]. Such massive increase in the prevalence of language delay in a short duration indicates that the problem in growing without any control (though the use of different modalities could also partly explain it).

In the current study, the prevalence of language delay was higher than the overall prevalence in world literature [8, 35]. This high prevalence could be due to a comparatively unsocial community lifestyle in Saudi Arabia, where

people prefer indoor activities more than outdoor activities due to the hot weather in this region. Excessive use of electronic devices nowadays could also be a reason. Saudi Arabia and the United Arab Emirates may share similar sociocultural risk factors, as rapidly growing countries, similar lifestyles involving many indoor activities, and families that often have child caregivers who are non-Arabic speaking. In addition, the number of working mothers is increasing, as is the proportion with full-time work. That can result in complicating children's acquisition of their mother tongue and can affect their sociolinguistic identity. Unfortunately, no previous study in Saudi Arabia has estimated the prevalence of language delay to compare our results with. The lower prevalence found in other Arabic countries, like Egypt, could be due to different diagnostic modalities and salient social differences between those societies and Saudi Arabia, such as more social life, fewer electronics, and fewer foreign caregivers [15, 25].

In our study, there were significant associations between language delay in preschool children and child age (p<0.001), sex, and family history of language delay (p<0.001). These results are similar to other Middle Eastern and international studies [14, 17, 26, 27]. The high prevalence of language delay in 3-year-old children and male children in our study were especially similar to findings in a study done in Macedonia [16]. Being a male in particular was a significant risk factor in many studies [14, 16, 26, 27, 29], which may perhaps be explained by slow nervous system maturation in males. Another theory is that the influence of testosterone makes proper connection difficult, leading to negative effects on development of brain areas involved with language skills [50].

The positive effect of family history of language delay, too, is similar to the results of many previous studies [14, 28, 29, 17, 26, 40]. This is natural, as shared genetic predisposition presumably influences early brain development. A study of twins carried out to evaluate genetic and environmental influences on them observed that children with scores below the fifth centile have a higher heritability factor than children with higher scores [39]. A similar result was also found in a large, systematic review in the US in 2015 [8].

Similarly, the relationship between language delay and time the mother spends with the child [ $p=0.008$ ] reflects the results of studies like a study in 1990, which showed that speech input from the mother facilitates children's language development [38]. Another study showed that the influence of both parents is especially important when children are young and acquiring cognitive, language, and social skills, upon which later development is built [49].

Many studies have shown that early and consistent participation by parents in routine learning activities, including shared activities like telling stories, book reading, and teaching about the letters of the alphabet, provides children with a vigorous, critical foundation for early learning and language development [37, 34, 32, 12].

Two studies both published in 2001 both show that lexically rich conversation between a child and their parents helps them gain knowledge about familiar objects and events and helps their language skills develop [46, 47]. A study in 2005 showed that infants' communication skills develop with the complexity and amount of their mother's speech input [45].

In the current study, the time the child spends with the mother at home has a significant association with language development, but not the time spent with the father. Surprisingly, a similar result was found in a study done in the United States, indicating that this may be more than a culture-specific phenomenon. This may be because when fathers stay with children, they mostly play freely and physically more than talking, whereas child-mother interaction is more verbal and directed [43, 44]. Many studies have found that fathers produce less verbal output than mothers when interacting with their children [41, 42].

However, this finding was contradicted by another study, in 2010. The aim of that study was to assess parenting behaviour and perceptions and their relation with child development (optimal vs. delayed). The results supported the idea that the father plays a role in the child's learning and increases the chance that the child will develop age-appropriately [31].

This result shows the importance of interaction between children and their parents and supports the assertion that time spends with the child should be spent in interaction playing and telling stories, not only physical care like hygiene, feeding, or transportation. Further research should concentrate on the quality of child-parent interaction and its effects on language development, reflecting the role of both parents.

Next, in this study there was a statistically significant positive relationship between language delay in preschool children and number of hours watching TV, especially above 4 hours ( $p=0.0024$ ). This again is consistent with existing cross-sectional and longitudinal literature on early media exposure and language development [18, 21, 26, 36]. A similar result was found in South Korea: a large study in 2015 investigated the relationship between 2-year-old children's exposure to TV and language delay, and found a clear connection: a 2.7 times increase in the risk of

language delay compared to those who were watching TV less than 1 hour daily; those with more than 3 hours watching TV had three times more risk. Also, the risk of language delay increased proportionately with increase in TV time [18].

The statistically significant negative relationship between language delay in preschool children and the number of hours the child uses electronic devices was statistically higher in those who use them more than 4 hours ( $p=0.011$ ). A similar result was found in a study in 2010, a cohort study examining the association between media use and the language and cognitive development of 259 infants. The duration and content of use of media like television, DVDs, movies, and games were recorded using a 24-hour recall diary based on an interview with the mother of the child at the age of 6 months. Then, at the age of 14 months, cognitive and language development were assessed using the Bayley Scales of Infant and Toddler Development and the Preschool Language Scale-4 (PLS-4). The result showed that longer duration of daily media use at six months predicted lower cognitive and language development at the age of 14 months [24].

A similar result was found in a cross-sectional study, in 2013, in which parents completed a self-administered questionnaire about the child's screen time use and the family's play and leisure habits of the family. Screen time data were collected from parents through a 24-hour recall about the child's use. Screens involved included television, mobile phones, computers and YouTube videos. Language outcomes were measured using ASQ3 data collected in the initial interview and one year later. Data analysis showed that watching TV more than 2 hours per day was associated with lower scores on the communication domain of the ASQ3 [36]. This relation between screen media use and language delay can be justified based on established cognitive function delays caused by early exposure to screen media [22, 23, 24, 27, 26, 33]. In addition, screen media exposure also decreases interaction between parents and their children; parents are very often not able to interact smoothly with their children around these electronics. As parent-child interaction is an essential component in communication development, any decrease in interaction resulting from language barriers may have exacerbated the negative impacts of TV and other electronics.

The American Academy of Pediatrics (AAP) recommends those children aged less than two years should have minimal or no screen media exposure, supporting this recommendation with evidence about the negative impact of screen media on brain development [3]. Nevertheless, as Wartella, Vandewater, and Rideout (2005) report, the majority of children aged less than two years use screen media for more than two hours a day, and a significant proportion of parents believe that screen media is important and beneficial for their children's intellectual development [48].

Thus, the results of this study emphasize the importance of the family physician roles in the education of families and correct the misconception that language can be learned via

screen, reaffirming the importance of interaction between parents and their children and the potentially negative effects of screen exposure on language delay in children.

## 5. Conclusion

This study identified high prevalence of language delay in a Saudi Arabian context. The main factors affecting language were being male, family history of language delay, less time spent with mother, and more than 2 hours' TV or electronic device use per day. Identification of children at risk of language delay may lead to increased intervention at a young age, when there is a higher probability of improvement.

This is the first study assessing the prevalence of language delay in Saudi Arabia, examining the associations of sociodemographic and social interaction factors with language delay in our population. Its large sample size and the fact that the selected from the community are methodological strengths. Ultimately, the study examined several factors that have been addressed in literature related to language delay among this age group. However, it had several limitations. One is the use of the recall. This was only completed once and did not account for changes after a period of time. The use of parent report also leads to the possibility that parents may misreport on some questions because of social desirability or recall bias.

## 6. Recommendations for Practice

Our results show the need for programs aiming at early detection of language delay. Such services should improve the outcomes of children with a language delay at the preschool stage and prevent later learning problems.

The results of this study also justify the establishment of management programs not only for children with language delay but also for their caregivers, providing health education and support that can help them help their children.

Family physicians should give parents and caregivers of young children accurate information about the potential harms of early exposure to screen media. This information should include explaining how the content of TV programs and amount of exposure has serious effects on language development.

## 7. For Future Research

Some useful studies that could take their cue from this one are as follows:

- A controlled case study about the risk factors of language delay, including children from birth to school age.
- A randomized controlled trial with a group of children not viewing any screen media.
- A study that examines the impact of parents' interaction with their child during early life in general and on language delay in particular.

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