

# The Contributions of Physiologic Birth and Cesarean Delivery to Attachment and Social Skills of 6-Year-Old Children

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## ABSTRACT

The aim of the current study is to investigate the contributions of physiologic birth and cesarean delivery to attachment and social skills of 6-year-old children. A causal-comparative research design was employed. The study was conducted during the Fall of 2017 and Spring of 2018 in 2 low SES state preschools randomly-selected in Bağcılar District, in İstanbul. The sample of the study is made up of a total of 50 children (23 girls and 27 boys). 20 of the children were normally delivered whereas 30 of them were cesarean born. Incomplete Stories with a Doll Family (ISDF) and Social Skills Rating System (SSRS) were used for the data collection. A t-test and One-Way ANOVA were employed for the data analysis. The results showed that that attachment levels and social skills of 5- and 6 year-old children differed significantly by types of child delivery favoring normally born children.

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### Keywords:

Cesarean Delivery, attachment, social skills, preschool

## INTRODUCTION

Several biological mechanisms that are activated during vaginal child delivery seem to influence attachment (Sayiner and Özerdoğan, 2009). Keverne, Levy, Poindron, and Lindsay, (1983) discovered the mechanism of vaginal-cervical stimulation in lamb, which also helps babies recognize their mothers.

Secretion of oxytocin is another important mechanism. Takeda, Kuwabara, and Mizuno, (1985) found that oxytocin level increases during and after delivery in mothers' brain, specifically in spinal fluid. Oxytocin during pregnancy and during the post-natal period is associated with mothers' attachment to infants (Campbell, 2008; Feldman, 2012; Galbally, Lewis, Ijzendoorn, and Permezel, 2011). During the hours following birth, the secretion of oxytocin triggers nurturing feelings and behavior (Güleşen and Yıldız, 2013). However, cesarean delivery has been associated with lower levels of oxytocin (Nissen et al., 1996), which may result in a less secure mother-infant attachment (Galbally et al., 2011).

Cortisol is another hormone that has been associated with mother-infant attachment. Cortisol increases during delivery, which is a sign of the development of maternal attachment (Fleming, Steiner, and Corter, 1997). Cesarean delivery is also associated with low levels of cortisol (Vogl et al., 2006), which may result in a less secure mother-infant attachment. Mothers go through many biological changes not only during pregnancy but also after delivery. Noradrenaline is one of the first hormones that is released during delivery. It increases during uterine contractions. When children are born, the first thing they smell is maternal odor, which is known to play an important role in child-mother attachment. Noradrenaline helps newborns recognize maternal body odor. Cesarean children are less likely to attach maternal odor as they do not experience uterine contractions and noradrenaline stays low during cesarean delivery (Varendi, Porter, and Winberg, 2002).

Attachment during early years is related to relationships later in life (Seven, 2008; Seven and Ogelman, 2012). Forming healthy relationships depends on secure parent-infant attachment in the early years. The social interactions of mother and child contributes to the development of child's social skills. Children forming secure bonds with their caregivers tend to develop more positive behavior and play more active roles in social relationships compared to children with insecure attachment styles (Seven and Alabay, 2020).

The formation of secure parent-infant attachment is fundamental to social and emotional development of children (Seven, 2010). Secure attachment contributes to children's peer relations, problem solving skills, self-image and self-control in a positive way (Cassidy, 1988). Previous research on secure and insecure attachment points out that children securely attached to their caregivers are more interactive in peer relationships and more competent in social skills demonstrating more prosocial behavior (Güleç and Kavlak, 2013; Seven, 2008; Seven and Ogelman, 2012).

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Although there are many studies focusing the association between child delivery and social skills (Ebrahimi, Karimian, Kolahdozan, and Emamian, 2020; Gathwala and Narayanan, 1991; Korja, Latva, and Lehtonen, 2012; Mutryn, 1993; Zanardo et al., 2016), the number of studies investigating the contributions of types of child delivery to attachment and social skills seems insufficient. Therefore, the following research questions will be addressed within the scope of the present study:

1. Does attachment differ by types of child delivery?
2. Do social skills differ by types of child delivery?
3. Do assertion, cooperation and self-control skills differ by types of child delivery?

## **METHOD**

### **Research Design**

A causal-comparative research design was employed. In addition to the descriptive methods, comparison of groups is required. Researcher focuses on a variable in its natural settings and tries to identify the underlying factors of its difference (Başol, 2008).

### **Participants**

The study was conducted during the Fall of 2017 and Spring of 2018 in 2 low SES preschools randomly-selected in Bağcılar District, in İstanbul. All the children aged 60-72 months in 4 classes participated in the study. The sample of the study is made up of a total of 50 children (23 girls and 27 boys). 20 of the children were normally delivered whereas 30 of them were cesarean born.

### **Material**

#### *Social Skill Rating System Teacher Form –SSRS*

Teacher Form was used to collect social skills data. The Social Skills scale, as a measurement area of SSRS-TF, has three subscales, which are Assertion, Cooperation and Self-Control. The Problem Behaviors Scale includes two subscales, which are Externalizing Problems and Internalizing Problems. These two scales have a total of 48 items. The scores are interpreted as low, medium or high level of social skills.

The Social Skill Rating System was developed by Gresham and Elliott (1990). An analysis of internal consistency yielded average coefficient alpha reliabilities (across all forms and educational levels) of .90. Test-retest reliability scores correlated .85 (Oprea, 1998). The scale was adapted to Turkish by Seven (2006). The validity was tested with Exploratory Factor Analysis, *t*-test and Confirmatory Factor Analysis. The results showed that the scale has a three-factor structure. The results yielded coefficient alpha reliabilities of .94 for the Social Skills scale, .93 for the Cooperation subscale, .86 for the Self-Control scale, and .83 for the Assertion scale. "Quickly make friends." is the one of sample item.

#### *Incomplete Stories with Doll Family*

It was developed by Cassidy (1988) for children at the age of six. It is administered with a doll telling six stories, each of which lasts about three minutes, relevant to her family. Children are expected to talk about their mental representation about their attachment state through these stories, which gives clues about the child's attachment to his/her mother.

During the assessment, dolls and dollhouse are arranged in line with the stories. Then, the child is asked to imagine himself as if living in the dollhouse and choose a doll to represent himself. The child is allowed to play with the dolls for some time to explore them before the administration.

Each story is rated by coders who do not know the child from verbatim on a five-point scale. High scores are given to the stories which represent the child's secure attachment to the attachment figure. Each story is rated by coders separately. "Puppet interviews", "Harter's Scale of Perceived Competence and Social Acceptance for Young Children" and "self interview" were used to test the reliability and validity of the tool and consistency ranged between .47-.68 (Cassidy, 1988). The reliability Alpha coefficient was .78 and the test-retest coefficient was .63. The scale was adapted to Turkish by Seven (2006) and the Cronbach's Alpha coefficient was .94 for the Turkish version.

#### *Demographics Form*

It aims to collect demographic data from the participating children and parents, including types of delivery, gender, date of birth, and maternal education. It was completed by parents.

### Data Analyses

Incomplete Stories with a Doll Family (ISDF) and Social Skills Rating System (SSRS) were used for the data collection. ANOVA and t-test were employed for the data analysis. SSRS were completed by the teachers and ISDF were administered by the researchers during the interviews with the children.

### FINDINGS

As seen in Table 1, %40 of the children were born normally while %60 of the children were cesarean. %56 of the children were boys and %44 were girls. %68 of the children were born in 2012 and %32 were born in 2013.

**Table 1.** Child Demographics

Variables	Grup	N	%
Type of Child Delivery	Normal	20	40
	Ceserean	30	60
Gender	Male	28	56
	Female	22	44
Birth year	2012	34	68
	2013	16	32

Table 2 shows that attachment styles seem to differ by types of child delivery for 5- and 6 year-old children [ $t_{(48)}= 3,92, p >.001$ ]. Normally born children ( $\bar{X} = 23,7$ ) had higher levels of attachment than cesarean children ( $\bar{X} =19,6$ ).

**Table 2.** T Test Results Comparing Types of Birth on Attachment

Gender	N	$\bar{x}$	sd	t	P
Normal	20	23,7	48	3,92	0.00
Cesarean	30	19.6	47,9		

Table 3 shows that social skills of 5- and 6 year-old children seem to differ by types of child delivery ( $F =5,65, p >.05$ ). Normally born children ( $\bar{X}=43,6500$ ) had scored higher than cesarean children ( $\bar{X}=35,2000$ ) in social skills. Similarly, normally born children ( $\bar{X}=18,70; 9,85$ ) scored higher than cesarean children ( $\bar{X}=14,46; 9,16$ ) in the Assertion and Self-Control Subscales ( $F =6,60, p >.05$ ;  $F =8,05, p >.05$ ). However, there was no significant difference between the groups in Cooperation Subscale ( $F =1,52, p <.05$ ).

**Table 3.** Mean Scores for Social Skills Subscales by Types of Child Delivery and ANOVA Results

Factor	Types Of Child Delivery	N	$\bar{X}$	Standard Error	F	Sig
Assertion	Normal	20	18,70	2,451	6,60	,013
	Cesarean	30	14,46	4,336		
Cooperation	Normal	20	15,10	2,971	1,52	,24
	Cesarean	30	11,56	3,568		
Self-Control	Normal	20	9,85	1,954	8,05	,71
	Cesarean	30	9,16	3,974		
Social Skills	Normal	20	43,65	6,507	5,65	,021
	Cesarean	30	35,20	9,757		

## RESULT, DISCUSSION, AND SUGGESTIONS

The results of the current study indicated that level of attachment seem to differ by the types of child delivery. Normally born children had higher levels of attachment than cesarean children, which was consistent with the previous research findings (Ebrahimi et al., 2020; Zanardo et al., 2016; Zavardehi, Faramarzi and Mirzaeian, 2018). Zavardehi, Faramarzi and Mirzaeian, (2018). Iranian children born in cesarean section were found to have less attachment compared to normally born children, which was further supported by Ebrahimi et al.,(2020). Similar findings were also obtained in Western studies. Zanardo et al., (2016) worked with Italian children and found that normally born children had higher levels of attachment to their mothers although the findings were limited to low SES children.

The results also showed that 6-year-old children's social skills differed significantly by the types of child delivery on behalf of normally born children. There are no studies focusing on the direct relationship between types of child delivery and social skills. Mutryn, (1993) investigated the psychosocial traits of normally born and cesarean children and suggested that cesarean children seem to have some disadvantages. There is an extensive body of literature suggesting that insecurely attached children tend to have weaker social skills (Gallarín and Alonso-Arbiol, 2012; Seven, 2006; Seven and Ogelman, 2012). As cesarean children are more likely to be insecurely attached to their caregivers, they are expected to be less competent in social skills.

Assertion, as a part of social skills, differed by types of child delivery favoring normally born children. However, no significant difference was found in Self-Control and Cooperation Subscales. Self-control and cooperation skills have a nature that may be supported by family and school during early years and preschool period. Wiklund, Edman, Larsson and Andolf, (2006) regarded assertion as a personal trait and found no significant difference by types of child delivery. The findings of the current study may be associated with SES of the parents. Lareau, (2011) observed that low-SES parents were more assertive in their interactions with their children. This is in line with the present study whose participants were all from low-SES households.

The present study is a prominent one as it investigates the links between types of child delivery, attachment and social skills. The results suggesting that attachment, which is related to many psychological concepts, do differ by types of child delivery underlines a social responsibility. This research has some limitations. The most important limitation of this research is that it is done with families with low socio-economic level. Attachment and social skills of children from mid- and high-SES households may be investigated in future research. Another limitation of this research is that attachment is measured at 6 years of age. As the current study is limited to 6-year-olds, future research may focus on a wider age range. More research on the psychosocial effects of cesarean section specific to Turkish samples is needed. In future studies, it is recommended to repeat the study with younger children.

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