Quality of attachment in infants less than 1500 g or less than 32 weeks. Related factors

Maria López-Maestro a,⁎, Purificación Sierra-García b, Celia Diaz-Gonzalez c, Ma Jose Torres-Valdivieso d, David Lora-Pablos e, Susana Ares-Segura f, Carmen R. Pallás-Alonso g

a Neonatology Unit, 12 de Octubre University Hospital, Red SAMID II, Madrid, Spain
b Developmental and Educational Psychology Department, UNED, Spain
c Neonatology Unit, University Hospital La Paz, Spain
d Neonatology Unit, 12 de Octubre University Hospital, Red SAMID II, Madrid, Spain
e Clinical Research Unit (I+12), 12 de Octubre University Hospital, CIBER de Epidemiología y Salud Pública (CIBERESP), Madrid, Spain
f Neonatology Unit, University Hospital La Paz, Spain
g Neonatology Unit, 12 de Octubre University Hospital, Red SAMID II, Madrid, Spain

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A B S T R A C T

Background: Prematurity carries a high risk of mortality and sequelae, altering the bonding process and leading to repercussions in terms of attachment.

Objective: To assess the type of attachment in children under 32 weeks' gestational age (GA) or below 1500 g, in hospitals where development-centred care has been implemented and to study the association between various types of attachment and certain neonatal and family characteristics.

Method: Children <1500 g or <32 weeks GA who were born or admitted before 48 h of life to one of two hospitals in Madrid between January and December 2012 were candidates for the study. The type of attachment was assessed through the strange situation procedure (SSP). Attachment was classified according to three types: secure (B), avoidant (A), or resistant/ambivalent (C). Insecure attachment was considered to be A + C. Children were assessed at a corrected age of 2 years using the Bayley III Scales and SSP. Data on the characteristics of the parents and children were collected.

Results: A total of 59% (117/199) of the children <1500 g or <32 weeks GA born in 2012 in the two study hospitals were able to be evaluated. Secure attachment was found in 64% (75/117), avoidant attachment in 12.8% (15/117), and resistant/ambivalent in 23.1% (27/117). The children with secure attachment had a score of 107.6 ± 16 in the cognitive area of the Bayley's Scale versus 98.8 ± 18.8 in those with insecure attachment (p 0.007). Frequency of secure attachment at ≤26 weeks GA was 23% (3/13) versus 69% (72/104) in children ≥26 weeks GA (p 0.003).

Conclusions: Nearly two-thirds of the children studied presented secure attachment, which was associated with better cognitive development. The frequency of secure attachment is lower in the children born more preterm.

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1. Introduction

Every year, >15 million premature children are born worldwide [1]. In the majority of developed countries, there has been an increase in the frequency of prematurity in recent decades. However, encouraging data is coming from the United States, where in recent years the number of premature births has been dropping [2].

Unfortunately, although survival in developed countries has significantly improved, even in the cases of children weighing under 1000 g or who are at <26 weeks of gestational age (GA), the same cannot be said of the psychological problems associated with prematurity [3].

Regarding cognitive aspects, a common belief is that for each gestational week lost in the mother's womb, the intelligence quotient decreases 0.3–0.5 points. The need for special education is 2.3 times more common in children born at 24 weeks [4,5]. These psychological problems associated with prematurity are probably induced, in part, by the fact that a preterm infant is exposed to unnatural stimuli not present in the uterus [6]. These unnatural stimuli occur on a daily basis to premature children who are frequently exposed to painful procedures, [7] a noisy, exceedingly bright environment, [8] infections, and bouts of hypoxy and undernourishment, all of which alter normal organ development [9].

One of the unnatural stimuli influencing the premature child is sub-optimal bonding [10]. Bonding to the primary caregiver is a fundamental goal in human development because it identifies the caregiver as a “secure base” from which to explore the environment [11]. The concept
of bonding has been the object of criticism for years, mainly questioning the role of the mother as the architect of the child’s personality [12]. However, it is a well-recognised fact that the quality of attachment is significant for children’s social competence and their enduring mental health [13,14]. The birth of a premature infant puts significant stress on the family. When the bonding process that begins before birth is interrupted, changes can occur in the parenting process that could have consequences for the child’s life. Based on the quality of the interaction with the primary caregiver, the child develops [15] one type or another of attachment with his/her caregivers during the first year of life [16].

The impact of prematurity on attachment style has been examined in the literature. There is little information about the impact of prematurity on the type of attachment. In the scientific literature, few studies describe the attachment pattern of very premature children [17], and most of these studies were conducted > 20 years ago. The studies have limited samples [18–19] (Table 1) and do not provide information about extremely premature children. The approach to prematurity has undergone substantial change [20–21] over the last 2 decades regarding various aspects, two of which are the presence of parents in the neonatal unit and the implementation of development-centred care. Development-centred care gives parents 24-hour access to the unit and includes kangaroo-care, breastfeeding promotion and support, pain prevention, and environmental care. It aims to decrease the stress and suffering of the child and his/her family, thereby encouraging his/her neurodevelopment.

Consequently, the changes introduced in the neonatal units with the implementation of development-centred care require new studies focused on the attachment of premature children in an environment conducive to the cerebral and emotional development of the child [22]. For this reason, this study was designed to assess the type of attachment in children under 32 weeks GA or <1500 g in hospitals where development-centred care has been implemented, and to study the association between various types of attachment and certain neonatal and family characteristics.

2. Methods

2.1. Participants

Infants weighing <1500 g or who were at <32 weeks GA, who were born or admitted before 48 h of life to one of two Neonatal Units (IIIC level) between January and December 2012, were potential participants. Children with evidence of major deformities, chromosomopathies, parental drug abuse, or parents with significant language limitations were excluded. The families were notified and invited to participate in the study. All the parents who agreed to participate signed an informed consent form. The neonatal units (Hospital 12 de Octubre and Hospital La Paz) are both located in the city of Madrid and have similar characteristics in terms of number of patients and characteristics of care.

2.2. Measures

A series of variables were considered: perinatal variables, immigrant status, family economic level, and parental level of education. Low economic level was defined as receiving unemployment benefits or less

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**Table 1**

Comparison between the various studies that have used the Strange Situation test to assess the quality of attachment in premature children.

<table>
<thead>
<tr>
<th></th>
<th>Present study</th>
<th>Brisch</th>
<th>Easterbrooks</th>
<th>Golberg</th>
<th>Wolke</th>
<th>Udry-Jorgensen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of participants</td>
<td>117</td>
<td>70</td>
<td>30</td>
<td>56</td>
<td>71</td>
<td>35</td>
</tr>
<tr>
<td>Weight (g)</td>
<td>1149</td>
<td>944</td>
<td>660-1500</td>
<td>1087</td>
<td>1245</td>
<td>1383</td>
</tr>
<tr>
<td>Gestational age (weeks)</td>
<td>29.2</td>
<td>27.6</td>
<td>26-31</td>
<td>29.02</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Secure attachment</td>
<td>64.1%</td>
<td>64.7%</td>
<td>67%</td>
<td>75%</td>
<td>61%</td>
<td>53%</td>
</tr>
<tr>
<td>Avoidant attachment</td>
<td>12.8%</td>
<td>23.6%</td>
<td>18%</td>
<td>18%</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>Resistant attachment</td>
<td>23.1%</td>
<td>8.8%</td>
<td>33%</td>
<td>7%</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>Insecure attachment (A + C)</td>
<td>35.9%</td>
<td>32.4%</td>
<td>33%</td>
<td>25%</td>
<td>23%</td>
<td>47%</td>
</tr>
</tbody>
</table>
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