

Patterns of attachment in early infancy in normative samples, alternative caregiving systems, and high risk infants

Patrones de apego en la infancia temprana en muestras normativas, contextos de cuidado alternativo, e infancia de alto riesgo

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Abstract

Scientific evidence gathered over the last decades has demonstrated that early attachment is a vital process for the understanding, prevention, and intervention of people's mental and physical health. However, information about the attachment system functioning in Chile is scarce. **Objective:** To describe attachment styles distribution in populations of children under different types of care. **Subjects and Method:** Through a retrospective descriptive method, 714 mother-child pairs (1 to 36 months-old) selected at random and purposefully, were assessed using the Strange Situation Procedure, Attachment during Stress Scale (ADS), and Student-Teacher Relationship Scale. The samples were collected from randomly selected normative families, infants attending JUNJI nurseries and kindergartens, and infants from CONIN centers and who live in prison with their mothers. **Results:** The samples from six studies show the spectrum of the attachment system functioning in diverse conditions: 70% secure and 30% insecure, and 51.1% secure and 48.9% insecure in normative samples; 48.5% secure and 51.5% in secure in alternative care; 39.6% secure and 60.4% insecure, and 25% secure and 75% in secure styles in high-risk samples. **Conclusion:** the study presents interesting evidence on the attachment distributions in childhood, which allow reflecting on the uneven Chilean reality with regard to early social and emotional development.

Keywords:

Attachment;
early infancy;
preventive
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early risk

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Introduction

The Attachment Theory is considered as the most comprehensive research program in social sciences, due to its number of studies (around 17,000 published researches), the scope throughout the life cycle (from pregnancy to adulthood), and the analysis levels multiplicity (from genetic to cultural)^{1,2}. However, there are many questions related to the behavior of the attachment system in different contexts and cultures. An important line of research focuses on comparing the distribution of four attachment patterns (Secure, Insecure-avoidant, Insecure-ambivalent, and Disorganized) in different cultures and societies³. In general terms, there has been a tendency to find 2/3 of secure patterns, and the last third distributed in avoidant patterns (12-15%), ambivalent patterns (15%), and disorganized patterns (9%). However, cultural differences are evident⁴: for example, there are discrepancies between Western European countries (towards avoidance) and Japan and Israel (towards ambivalence)⁴. The current conclusion is that although the attachment system has an evolutive-biological root (universal in the species), its cultural influence cannot be forgotten⁵.

Another related line of research focuses on understanding the behavior of the attachment system in the alternative care conditions (e.g. nurseries) and/or high vulnerability environments (e.g. early institutionalization). In the first case, broad evidence has demonstrated that alternative care can have negative effects in the attachment development (both with alternative caregivers and main attachment figures), especially when the stay time in the institutions exceeds four hours per day and the child:caregiver ratio is higher than six⁶. In the second case, studies in abused⁷ and early institutionalized children⁸ have demonstrated that the proportion of 2/3 secure attachment and 1/3 insecure and disorganized attachment is inverted, proving that these conditions are an extreme risk factor for the expected development of the child.

However, all these studies were performed in northern countries, and there is no complete evidence on the distribution of attachment patterns in normative and high-risk samples, and in alternative care contexts in Latin-American countries. Therefore, the objective of this study is to analyze the differences in attachment styles in different care contexts. Thus, the results allow representing a complete overview of the attachment system behavior in Chilean children, being the only contribution in the region.

Subjects and Method

Retrospective descriptive study. For clarification purposes, the six studies are categorized according to

1) Normative population in familiar context (study 1 and 2); 2) Normative population in alternative care (nurseries and kindergartens) (study 3 and 4); 3) Population at extreme risk (early institutionalization and mothers-children in prison) (study 5 and 6).

Instruments

- Sociodemographic indicators guideline: A general information guideline was created that included name, age, sex, date of birth, and general medical history.
- Strange Situation Procedure (SSP)⁹: Experimental procedure that consists of the detailed observation of the interactions between the mother and her child, in 8 episodes of 3 minutes, where the mother separates and reunites with her children, with another strange person in the room¹¹. The instrument is corrected based on a micro-analytical observation of the attachment behavior of the child, in relation to 4 scales scored from 1 to 7 points. The scales are: 1) proximity seeking; 2) contact maintaining; 3) avoidance of proximity and contact, and 4) resistance to contact and comforting. The exhaustive and trained codifications show four attachment patterns: Secure Attachment; Insecure-Avoidant Attachment; Insecure-Ambivalent Attachment; and Disorganized Attachment. The procedure codification was performed by the first author (FL), who has the official international certification for this purpose (Institute of Child Development, University of Minnesota). This procedure is considered the Gold Standard of early attachment assessment system (e.g. 341 published studies up to 2010¹⁰, due to its concurrent validity with other development measurements, predictive (up to adulthood), and multicultural validity¹¹.
- The Massie-Campbell Attachment During Stress (ADS) Scale: This instrument is a modified, adapted, and validated version of an observation guideline of attachment quality indicators in the pediatric care context¹², observed in both the main caregiver and the child¹³. The observation guideline includes six behavioral attachment indicators (gazing, vocalizing, touching A, touching B, holding, affect, and proximity) which are organized in a scale ranging from 1 to 5 points, where each score shows a specific description of the type of behavior to be used (e.g. a score of 1 in the 'gazing' indicator of the mother means that 'she always looks away from child's face'). Scores close to 1-2 show an insecure-avoidant attachment, and scores close to 5 show an insecure-ambivalent attachment. Scores close to 3-4 indicate a secure attachment. Many studies showed validity and reliability le-

vels appropriate both nationally¹⁴ and internationally¹⁵, and it was used as a standard attachment assessment measure (at 4 and 12 months of age) in the National Child Protection Program “*Chile Crece Contigo*” (Chile Grows with You), as well as in different studies of high-risk population and the efficiency in early intervention models¹⁶. All interactions were video recorded and their codification was performed by two experts with more than five years of experience in the use of the scale and the attachment observation.

- The Student-Teacher Relationship Scale (STRS)¹⁷: The Student-Teacher Relationship Scale short form (STRS-SF) was validated in Chile by Becar, Cheyre, and Diemer¹⁸, showing good results of reliability and factorial validity. It is a Likert scale, aimed at students aged between 4 and 8 years (but it can be used in younger children between 2 and 3 years of age). This scale is used to assess the perceptions that the teachers have about their relationship with a specific student. Therefore, it assesses the emotional relationship variable between teacher-student. It consists of a self-reporting questionnaire for the teacher. It has two sub-scales: Conflict: which measures the degree that he/she perceives his/her relationship with a student as negative and conflictive; Closeness: which measures the degree of affection, warmth, and open communication with a student, and a Total Scale which evaluates the general quality of the relationship.

Procedure

- 1) Normative population in a familiar context (Strange Situation Procedure): Mothers-Babies (12 to 20 months of age) were selected in both studies (1 and 2). Regarding study 1, the selection process was carried out in primary health care centers (Lo Bernechea) and hospitals (Barros Luco Hospital), while in study 2, the selection was carried out through social networks and personal contacts. Severe psychiatric psychopathology of the mothers, as well as congenital diseases of the child that do not allow an appropriate execution of the experimental procedures were considered as exclusion criteria, and immigrant mothers were also excluded. Mothers and their children were invited to the offices of the *Servicio de Psicología Integral* of the Universidad del Desarrollo and the *Unidad de Psiquiatría Sur* of the University of Chile, where they were assessed (double mirror) after a series of instructions and signing the informed consent. These evaluations were video recorded for later analysis, which was performed after two months, and then finally analyze the data through the statistical software SPSS Version 19.

The studies were approved by the ethics committee of the School of Psychology of the Universidad del Desarrollo and financed by the National Commission for Scientific and Technological Research (CONICYT).

- 2) Normative population in alternative care (nurseries and kindergartens) (study 3 and 4): Both samples were selected from the National Kindergartens Board (JUNJI) institutions from the IV, VI, VIII, and Metropolitan regions as part of a study to assess the effectiveness of the Attachment Promotion Program and the Social-Emotional Learning financed by the Ministry of Social Development and Family. The age of the children ranged from 1 to 26 months (nurseries) and from 12 to 53 months (kindergartens). The selection of both samples was purposively made by JUNJI authorities, therefore, there were no inclusion or exclusion criteria. The video recordings were performed in the context of the nurseries and kindergartens, and the codification was carried out by trained expert evaluators. The study was approved by the ethics committee of the Universidad del Desarrollo and of the JUNJI.
- 3) Population at extreme risk (early institutionalization and mothers-children in prison) (study 5 y 6): The first sample was selected from care centers of the *Corporación para la Nutrición Infantil* (CO-NIN), which shelters children from 0 to 4 years with different chronic pathologies and/or psychosocial vulnerability, with ages ranging from 0 to 33 months. Children from centers of six cities were assessed (Arica, Valparaiso, Temuco, Valdivia, Santiago, Los Angeles). The video recordings were made in the centers, and the codification was done by trained expert evaluators. The second sample was selected from 11 prison facilities (Arica, Iquique, Antofagasta, Copiapó, La Serena, Valparaíso, Rancagua, Concepción, Valdivia, Santiago, and Los Angeles), and consisted of mothers that live with their children (0 to 23 months). The dyads were assessed in the prison facilities, the video recordings were performed in the centers, and the codification was carried out by trained expert evaluators. Both studies were approved by the ethics committee of the Universidad del Desarrollo and *Gendarmería de Chile* (GENCHI), and financed by the Ministry of Social Development and Family (Chile), as research to measure the effectiveness of the Attachment Promotion and Respectful Care Program.

Participants

Table 1 summarizes the sample size, the age (average and standard deviation), and children's sex of the six studies.

Table 1. Age (in months) and Standard Deviation of Children and Sample Size

Research	\bar{x}	S.D	N
Research 1 (Normative Sample)	13.3	13.3	130
Research 2 (Normative Sample)	18	2.7	103
Research 3 (Playgroup)	17.21	5.52	156
Research 4 (Kindergartens)	36.82	7.6	288
Research 5 (CONIN)	12.5	7.6	56
Research 6 (GENCHI)	7.51	5.6	41

Table 2. Distribution of Attachment Classification in Study 1

Attachment Classification	Research 1
Secure	70%
Avoidant	10%
Ambivalent	10.8%
Disorganized	9.2%

Table 3. Distribution of Attachment Classification in Study 2

Attachment Classification	Research 2
Secure	51.1%
Avoidant	30.9%
Ambivalent	10.6%
Disorganized	7.4%

Table 4. Distribution of Attachment Classification in Study 3

Attachment Classification	Research 3
Secure	49%
Avoidant	36.5%
Ambivalent	2.1%
Risk	12.5%

Table 5. Level of Closeness and Conflict in Study 4

Level of Conflict		Level of Closeness	
High	35%	High	0%
Normal	50%	Normal	44%
Low	15%	Low	56%

Results

The results are divided into two parts: The distribution description of the attachment styles in the six studies/samples, and the analysis of the correlation between the attachment and the age and sex.

In relation to the two studies with normative samples, it was observed that the proportion of secure attachment was 70% and the insecure and disorganized attachment was 30% (see table 2, study 1). In study 2 (table 3), it was observed 51.5% in the secure attachment and 48.5% in the insecure and disorganized attachments. Likewise, the proportion of avoidant attachments increased from 10% to 30%. The ambivalent and disorganized proportion was stable.

Regarding the studies in alternative care samples (study 3 and 4), 49% in the secure attachment and 51% in the insecure and disorganized attachment were observed (table 4). The high proportions of avoidant attachment stand out as well as the low percentage of ambivalent patterns.

In the study conducted in kindergartens, where a different methodology was used, it was found that the educators perceive a high conflict with 35% of their students and 56% of low closeness with them (table 5).

Finally, in the studies in high-risk samples (study 5 and 6, see table 6 and 7), it was found an inversion in the normative pattern of attachment distribution (2/3 secure and 1/3 insecure and disorganized). In the case of the samples from the CONIN centers of institutionalized children, a 24.5% risk was observed (tendency towards disorganization), and 26.4% in the avoidant

Table 6. Distribution of Attachment Classification in Study 5

Attachment Classification	Research 5
Secure	39.6%
Avoidant	26.4%
Ambivalent	9.4%
Risk	24.5%

Table 7. Distribution of Attachment Classification in Study 6

Attachment Classification	Research 6
Secure	25%
Avoidant	15%
Ambivalent	7.5%
Risk	52.5%

pattern (the total proportion of insecure was 60.3%). In the case of mothers and children in prison sample, 52.5% of high-risk attachments and only 25% of secure attachments were found. Both results show a highly severe development in children younger than two years of age, and therefore alerting in both high vulnerability conditions.

The objective of the second type of analysis was to confirm the hypothesis that attachment patterns are not related to the age and sex of the child²⁰. Through a series of correlations, no significant relations between the attachment and these types of variables were found in none of the studies.

Discussion

The outcomes of the six studies show interesting discussions and conclusions for the unequal realities of childhood in Chile (and probably in Latin-America). Regarding the two normative samples, two main aspects should be discussed. First, it was confirmed the westernized trend of 2/3 secure attachment and 1/3 insecure and disorganized attachment⁴. The current discussion of whether this distributive pattern is something rather universal or specific to each culture^{3,5} raises the necessary reflection on whether Chile is part of the individualist-western societies or these distributions follow biological-universalist criteria²¹. Therefore, a series of multicultural studies conducted in 24 countries on temperament, 16 on mental health, and 16 in parenting would confirm the first hypothesis²²⁻²⁴, thus, Chile would be reaching an adaptation difficulty pattern, which is a typical characteristic of individualistic and industrialized societies. Secondly, and related to the previous point, the increase of avoidant attachment styles over the last 10 years stands out. And again, it is worth discussing if this distribution is related to this tendency towards individualism that our country seems to be experiencing. For example, it has been noted that avoidant styles are usually associated with internalizing mental health difficulties (depression, anxiety, shyness, etc.), as well as related to emotional over-control, and the multicultural results, where our country has participated, showed a 16-20% prevalence of internalizing disorders in preschool Chilean children, which is three times higher than the global prevalence²¹.

Likewise, studies in Chilean nurseries and kindergartens continue to confirm this Chilean trend towards avoidance/internalization. The outcomes in nurseries are especially worrying since there is a 37.1% of avoidant attachments (which added to the 12.4% of risk attachments, makes 47.5% of insecure attachment before 12 months of age). During the first year,

the theory indicates that the attachment system is in its formative stage, and our avoidant attachment rate (and low ambivalent attachments) leads to the conclusion that children enter nurseries with a tendency towards avoidance or they develop it in such places as a result from the care received or both. After analyzing the type of care given by the early-childhood educators under a micro-observation scale, the second hypothesis was confirmed, in other words, the educators' care is rather focused on the basic needs of the child, but not so on their socioemotional needs. In the educational context of kindergartens, it was observed that the early-childhood educators report a high conflict with 35% of their students, and 44% of low closeness. Both results are also worrying, considering that evidence has shown that high conflict levels predict a negative educational climate and a low academic performance²⁵. In relation to this, it could be analyzed if the teaching style and the expectations of the educators pressure a type of conflictive relationship when children express their stress. This has been confirmed in two findings where after interviewing the educators, it was found that a high percentage have expectations that a model child is 'self-controlled, well behaved, does not cry, does not bother, and stays calm'²⁶. In addition, in this study we observed that around 40-60% of the educators have beliefs contrary to what could be called 'respectful raising'²⁷. It is important to highlight that both studies confirmed the hypothesis of an avoidant/internalizing pattern in Chilean society.

Finally, the samples at extreme risk confirmed the devastating effects of adverse environments on early attachment development. The study of the children from CONIN (early institutionalization) confirmed the international results, where only 1/3 show a secure attachment and 2/3 show an insecure or disorganized attachment⁸. The difference and fundamental contribution of this investigation are that, unlike the majority, the results were obtained before the first year of life and with direct-contact educators (DCEs). Both aspects highlight the double fact that the earlier the institutionalization, the higher is the risk, and that, unless the DCEs are specialized in more emotional care, it is not possible to create a minimum desirable environment for the adequate development of the child⁸. The national study of mothers and their children in prison makes an important contribution to the research related to attachment and prison. On the one hand, the 52.5% of risk attachment level found is not only very concerning but constitutes one of the highest proportions found in high-risk studies. This compels reflection on the care conditions of the mothers (emotional rather than physical). On the other hand, it has been demonstrated that the stay of the child with his/her mother is a protective factor against recidivism²⁸ and

that an adequate intervention on respectful care can reduce the attachment risk effects and the socioemotional development of the children²⁸. Therefore, these results showed the highly harmful effects of the prison context and the urgency of implementing intervention programs that are continuous, organized, and effective in these contexts.

Ethical Responsibilities

Human Beings and animals protection: Disclosure the authors state that the procedures were followed according to the Declaration of Helsinki and the World Medical Association regarding human experimentation developed for the medical community.

Data confidentiality: The authors state that they have followed the protocols of their Center and Local regulations on the publication of patient data.

Rights to privacy and informed consent: The authors have obtained the informed consent of the patients and/or subjects referred to in the article. This document is in the possession of the correspondence author.

Conflicts of Interest

Authors declare no conflict of interest regarding the present study.

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