ATTACHMENT REPRESENTATIONS IN ADULTS WITH CONGENITAL BLINDNESS: ASSOCIATION WITH MATERNAL INTERACTIVE BEHAVIORS DURING CHILDHOOD¹,²

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Summary.—This study explores how maternal interactive behaviors experienced during the childhood of adults with congenital blindness are associated with their subsequent development and personality. Many researchers have found a high frequency of maternal directiveness and overprotection in sighted mother-congenitally blind child relationships. One open question is whether these behaviors may have negative effects on congenitally blind children’s subsequent development, or whether they may have a functionally adaptive-strategic role. The purpose of this study was to discriminate between the two hypotheses. This objective was pursued by adopting the theory of attachment and administering the Adult Attachment Interview to 15 participants with congenital blindness. Results suggested that directive and overprotective maternal behaviors are experienced by the persons with congenital blindness as encouraging and functional as long as they are accompanied by an affective, loving, and supportive attitude. Results did not support the hypothesis that directive and overprotective maternal interactive behaviors have a necessarily negative effect on the development of persons with congenital blindness.

Many studies in the field of child disabilities have shown a high frequency of maternal directive and overprotective behaviors when interacting with their children (Meadow, 1980; Cunningham, Reuler, Blackwell, & Deck, 1981; Bondurant, Romeo, & Kretschmer, 1983; Crawley & Spiker, 1983; Marfo, 1984, 1992; Davis, Stroud, & Green, 1988; Rogers, 1988; Hanzlik, 1989; Huang & Oi, 2001). This observation has also been confirmed in those studies concentrating on the verbal and nonverbal interactive behavior

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Behl, et al. (1996) found that the mothers of children with visual impairments were more physically involved with their children, used more controlling strategies, and spoke more than did the mothers of fully sighted children. Kekelis and Andersen (1984) also found such behavior in daily communicative interactions. In particular, these authors observed that the language used by the parents of children with blindness provides highly directive input. Similar results were also reported by Moore and McConachie (1994), who emphasized that both children with total blindness and children with a severe visual impairment received more requests for action than any other type of parental utterance. Also Conti-Ramsden and Pérez-Pereira (1999) and Pérez-Pereira and Conti-Ramsden (2001) pointed out that directiveness is the typical feature of speech of the blind children's mothers.

In the literature there are two opposing interpretive hypotheses regarding the manner in which the directive and overprotective behavior of the mothers of children with blindness can influence the development and personality of the children. A number of studies have suggested that these maternal interactive behaviors have a negative effect on children's development (Imamura, 1965; Tait, 1972; Kekelis & Andersen, 1984; Rogers & Puchalski, 1984; Rowland, 1984), whereas others have concluded that the mothers' directive behavior may be an appropriate adaptive response to the children's developmental levels (Urwin, 1984; Behl, et al., 1996; Conti-Ramsden & Pérez-Pereira, 1999; Hughes, et al., 1999; Pérez-Pereira & Conti-Ramsden, 2001). The principal objective of this research was to discriminate between these two hypotheses.

According to the theory of attachment (Bowlby, 1969, 1973, 1980), human beings have an innate tendency, shared with other species, to seek the proximity of a reference figure able to give protection and care whenever the need for this is aroused, for example, as a result of a shock, pain or illness. Bowlby attributes a protective function to this innate control system. According to this author, the requests for care based on the activation of the attachment system tend to elicit a complementary behavior of caregiving on the part of the figure of reference. As a result of the continuous interactions with caregivers, every child structures interpersonal cognitive schemes or internal working models.

The internal working models are structures of knowledge deriving from the repeated interactions between the child and the figure of attachment, which in the first years is often the mother. This knowledge, initially only procedural and later also declarative, regards the Self of the child and the
behaviors of the mother in response to the requests for caregiving received from the child. The principal function of the internal working models is to predict what may be expected from the world and from interaction with it. The more accurate these forecasts are, the better the child can organize his own behavior in an adaptive manner.

Briefly, the theory of attachment hypothesizes (1) an innate tendency to form relationships based on requests for help in a situation of need and (2) internal working models that are formed as a result of the attachment figure's responses to this innate tendency. These internal working models can be considered mental representations regarding an individual's experiences of attachment in infancy—maternal representations that constitute the nucleus around which knowledge of the Self and knowledge of others is organized. One recent study found evidence suggesting that the mental representation of childhood attachment experience influences information processing, and in particular, attention and memory (Zeijlmans van Emmichoven, van IJzendoorn, de Ruiter, & Brosschot, 2003).

The internal working models begin to develop right from the first year of life and tend to remain stable into adulthood (Bowlby, 1988; Bretherton, 1991; Grossmann & Grossmann, 1991; Waters, Merrick, Treboux, Crowell, & Albersheim, 2000). This tendency towards stability is not because the internal working models cannot change in principle, but because very often the parental attachment at the basis of their development tends to remain stable over time. The stability of the internal working models is also due to the fact that it is precisely on the basis of these models that adults tend to select actively the persons with whom they establish friendly and loving social relationships, with the result that these relationships tend to further confirm the internal working models (Frazier, Byer, Fischer, Wright, & DeBord, 1996).

The chosen inventory for the study of attachment in adults and of the relative internal working models is the Adult Attachment Interview of George, Kaplan, and Main (1985). The Adult Attachment Interview is grounded on the attachment theory of Bowlby (1969, 1973, 1980) and is a semi-structured clinical interview focusing on early attachment experiences and their effects. The interview classifies the "state of mind" that a person has towards childhood experiences of attachment, making it possible to understand the processes characterizing the development of the attachment experiences from the first months of life through to adulthood.

The Adult Attachment Interview is an instrument with excellent psychometric properties. Bakermans-Kranenburg and van IJzendoorn (1993) showed that the classification system of the Adult Attachment Interview is not influenced by nonattachment-related memory, verbal and performance intelligence, or social desirability, defined as the participants' need to present
themselves in a socially desirable light. The same authors, as also Sagi, van Ijzendoorn, Scharf, Koren-Karie, Joels, and Mayseless (1994), further showed a good test-retest reliability for the Adult Attachment Interview, which in the study of Sagi, et al. reached 90%. These psychometric results indicate that the different responses given by respondents are to be considered the basically exclusive result of the activation of attachment-related autobiographical memories.

The Adult Attachment Interview permits classification of an adult’s state of mind with respect to attachment. Four principal categories are defined. Main (1996, p. 238) describes these categories as follows. Secure/Free-autonomous: Coherent, collaborative discourse is maintained during description and evaluation of attachment-related experiences, whether these experiences are described as favorable or unfavorable. The speaker seems to value attachment while being objective regarding any particular experience or relationship. Dismissing: Normalizing, positive descriptions of parents (“excellent, very normal mother”) are unsupported or contradicted by specific memories. Negative experiences said to have had no effect. Transcripts are short, often with insistence on lack of memory. Entangled-Preoccupied: Preoccupied with experiences, seeming angry, confused and passive, or fearful and overwhelmed. Some sentences grammatically entangled or filled with vague phrases (e.g., “dadadada”). Transcripts are long, some responses irrelevant. Unresolved-Disorganized: During discussions of loss or abuse, shows striking lapse (or lapses) in the monitoring of reasoning or discourse; for example, may speak of dead person as if still alive in the physical sense, fall silent, or use eulogistic speech. May otherwise fit well to one of the other three categories.

It is also possible that the interview cannot be classified. This occurs when the elements of the discourse cannot be classified in any of the preceding categories because no single state of mind emerges (for example, part of the interview may show a strategy of the Dismissing type, followed by a sudden change to a strategy of the Entangled type; or the subject has different states of mind when describing different people, for example the father or the mother). This occurrence is infrequent and never arose in the participants in this research.

Various studies have shown that the Secure/Free-autonomous state of mind may be considered a protective factor against psychopathological risk (albeit not an absolute one), whereas the other three categories (together defined as “insecure”) are significantly correlated with clinical status, particularly the category of Unresolved-Disorganized (Benoit, Zeanah, Boucher, & Minde, 1992; Liotti, 1992; Manassis, Bradley, Goldberg, Hood, & Swinson, 1994; Fonagy, Leigh, Steele, Steele, Kennedy, Mattoon, Target, & Gerber, 1996; van Ijzendoorn & Bakermans-Kranenburg, 1996).
The objective of the research is to understand whether the directive and overprotective behavior which characterizes the interactions between typical sighted mothers and their children with congenital blindness is deleterious and has necessarily a negative effect on the child's development, or whether it is an appropriate adaptive-strategic behavior. In the light of the theory of attachment, our hypothesis is that if these maternal interactive behaviors are appropriate and adaptive in relation to the psychological profile of the child, then the percentage of persons with congenital blindness presenting self-reports classifiable as Secure/Free-autonomous state of mind should be similar to that of the sighted population at low psychopathological risk. Alternatively, if these material behaviors are dysfunctional and obstruct appropriate psychological development of the child, the percentage of respondents classified as Secure/Free-autonomous should be lower, with a greater incidence of insecure states of mind and consequently with a higher incidence of persons at higher risk for psychopathology.

Method

Participants

Inclusion criteria included: (a) Total congenital blindness—for total blindness we intend the total lack of vision or the mere perception of light. This condition is particularly important. Indeed, Moore and McConachie (1994) showed that even a very small amount of vision makes a considerable difference in the way parents interact with their child, depending on whether the child is totally blind or has a severe visual impairment. According to these authors, previous studies using mixed experimental samples have often failed to distinguish between persons with total blindness and those with some residual vision. In some previous experiments the important distinction between persons with congenital blindness and those with acquired blindness was not even taken into account. (b) Unaffected by additional impairments—a particular stringent condition, such that even Pérez-Pereira and Conti-Ramsden (2001) underlined the difficulty of obtaining a large sample of participants with no additional impairment.

These inclusion restrictions made it possible to involve in the research a total of 15 persons with congenital blindness (six men and nine women; Mean age = 37.8 yr., SD = 14.7). All the persons were contacted thanks to the collaboration of the Italian Union for the Blind, Turin. Of the 15 who voluntarily took part in this study, 14 had no light perception, and one had only light perception. For four, blindness had been caused by retrolental fibroplasia, for one by optic nerve atrophy, and for another by congenital retinitis pigmentosa. It was not possible to identify the cause of blindness in the others. In accordance with the indicated restrictions, no participants had additional impairments. The demographic characteristics of the participants are reported in Table 1.
TABLE 1

<table>
<thead>
<tr>
<th>Participant</th>
<th>Age</th>
<th>Sex</th>
<th>Employment</th>
<th>Education (yr.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>26</td>
<td>Male</td>
<td>Student</td>
<td>17</td>
</tr>
<tr>
<td>2</td>
<td>36</td>
<td>Male</td>
<td>Not employed</td>
<td>13</td>
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<td>3</td>
<td>50</td>
<td>Female</td>
<td>Clerk</td>
<td>12</td>
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<tr>
<td>4</td>
<td>26</td>
<td>Female</td>
<td>Student</td>
<td>15</td>
</tr>
<tr>
<td>5</td>
<td>40</td>
<td>Female</td>
<td>Switchboard operator</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>26</td>
<td>Male</td>
<td>Student</td>
<td>17</td>
</tr>
<tr>
<td>7</td>
<td>38</td>
<td>Male</td>
<td>Clerk</td>
<td>9</td>
</tr>
<tr>
<td>8</td>
<td>38</td>
<td>Male</td>
<td>Switchboard operator</td>
<td>10</td>
</tr>
<tr>
<td>9</td>
<td>31</td>
<td>Female</td>
<td>Clerk</td>
<td>11</td>
</tr>
<tr>
<td>10</td>
<td>17</td>
<td>Female</td>
<td>Student</td>
<td>10</td>
</tr>
<tr>
<td>11</td>
<td>39</td>
<td>Male</td>
<td>Physiotherapist</td>
<td>13</td>
</tr>
<tr>
<td>12</td>
<td>44</td>
<td>Female</td>
<td>Teacher</td>
<td>12</td>
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<td>28</td>
<td>Female</td>
<td>Clerk</td>
<td>10</td>
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<tr>
<td>14</td>
<td>79</td>
<td>Female</td>
<td>Retired person</td>
<td>5</td>
</tr>
<tr>
<td>15</td>
<td>49</td>
<td>Female</td>
<td>Switchboard operator</td>
<td>10</td>
</tr>
</tbody>
</table>

Materials and Procedure

The objective of the research was pursued by administering the Adult Attachment Interview of George, et al. (1985). The time required for administration of the interview can vary but is normally no longer than two hours. The interview is recorded on tape and later transcribed according to the norms indicated by Main (1994). The final phase of the Adult Attachment Interview is the codification of the transcribed text. This rather detailed and complex codification requires the evaluation of different psychological dimensions (according to different scales) and can be carried out only by suitably trained persons.

In the Adult Attachment Interview the participants are asked to list five adjectives to describe their relationship with their parents during childhood. Next, they are asked to support their chosen list with episodes they remember. During the interview, the participants are also asked to which parent they felt closer during infancy and why, and whether they ever felt rejected or threatened by their parents. In addition to these and other questions concerning their childhood experiences with their parents, they are asked whether they ever had significant traumatic experiences, such as loss or abuse. Finally, the participants are asked for a personal evaluation of the effects of their attachment experiences on their adult personality.

An experimenter carried out the Adult Attachment Interview in an appropriate environment. Transcripts were rated by a coder (E.I.) trained by Mary Main and Erik Hesse. In addition to the general classification of the state of mind with respect to attachment, we also concentrated on two of the scales of the Adult Attachment Interview: the Involving or role-reversing
scale and the Loving scale (Main & Goldwyn, 1994). The first of these two scales is rather complex and indicates different childhood experiences. In the light of our objectives this scale is interesting in that, amongst other things, it allows us to determine to what extent the parents of the participant interviewed stimulated, also in a directive way, the participant's attention and involvement during infancy, and to what extent they effected overprotective behaviors. The Loving scale assesses the extent to which the interviewees, during infancy, experienced their parents as able to give security and love, particularly in difficult moments.

The standard procedure for the evaluation of the Adult Attachment Interview scales entails assigning a score from 1 to 9 for each of the scales under consideration. The score is not based on objective measures of behavior, but on raters' judgments. After having conducted this operation, we assigned a "−" for raters' scores between 1 and 5 (indicating the tendential lack of a given behavior) and a "+" for raters' scores between 6 and 9 (indicating the significant presence of a given behavior). This procedure allowed us to maintain a conservative attitude concerning a corollary aim of this work, i.e., to verify the datum present in literature according to which the mothers of children with blindness behave in a directive and overprotective way towards their children.

**Results**

As shown in Table 2, from the codification of the interviews, there is support of the literature according to which the mothers of blind persons tend to behave in a directive and overprotective way with their children. Of the 15 participants who took part in this research, 11 declared on the Involving scale a significant degree of directiveness and overprotection by the mother. The relative data for the paternal figure is interesting. Unlike the mothers, the fathers of persons with congenital blindness demonstrated less propensity for this type of behavior (Wilcoxon test, \( z = 3.162, p = .002 \)). In our sample, in only one instance was there directive and overprotective behavior by the father of an interviewee. This is also particularly significant because the attention in existing literature has often concentrated on the maternal figure alone. As regards the Loving scale, the difference between reported behaviors of mothers and fathers was not statistically significant (Wilcoxon test, \( z = 1.34, p = .180 \)).

Table 2 also shows, for each participant, the state of mind with respect to attachment. In relation to the four categories previously illustrated, the data indicate that eight participants' interviews were classified as Secure/Free-autonomous, five Dismissing, and two Unresolved-Disorganized with a second classification of Entangled-Preoccupied.
TABLE 2

STATE OF MIND WITH RESPECT TO ATTACHMENT OF EACH PARTICIPANT AND PRESENCE OF BEHAVIOR MEASURED ON INVOLVING SCALE AND LOVING SCALE

<table>
<thead>
<tr>
<th>Participant</th>
<th>Scale: Father</th>
<th>Scale: Mother</th>
<th>State of Mind</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Involving</td>
<td>Loving</td>
<td>Involving</td>
</tr>
<tr>
<td>1</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>2</td>
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</tbody>
</table>

The most important aspect which emerged was that, although the percentage of directive and overprotective behaviors by mothers is high (over 73%), the percentage of participants with a Secure/Free-autonomous state of mind is similar to that of the sighted population at low psychopathological risk. Indeed, in our experimental sample the percentage of congenitally blind persons with a Secure/Free-autonomous state of mind is over 53%. Van Ijzendoorn and Bakermans-Kranenburg (1996) carried out an extensive, in-depth meta-analysis which showed that in the sighted population at low psychopathologic risk, the percentage of nonclinical women with a Secure/Free-autonomous state of mind is 55% (N=487) and that of nonclinical men 57% (N=241). This meta-analysis has further shown that in clinical samples the percentage of persons with a Secure/Free-autonomous state of mind falls to 8% (N=165). Thus the percentage of persons with a Secure/Free-autonomous state of mind registered in our sample is practically identical to that present in literature for the sighted population at low psychopathologic risk.

Summing up, the interviews carried out in this research with the Adult Attachment Interview support the data present in literature, showing on the

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3As van Ijzendoorn and Bakermans-Kranenburg (1996) pointed out: "This meta-analysis on 33 studies, including more than 2,000 Adult Attachment Interview classifications, presents distributions of Adult Attachment Interview classifications in samples of nonclinical fathers and mothers, in adolescents, in samples from different cultures, and in clinical groups" (p. 8).
Involving scale high directiveness and overprotection by the sighted mothers of persons with congenital blindness. Likewise, they indicate a percentage of congenitally blind adults with a Secure/Free-autonomous state of mind which is comparable to that of sighted adults. This result does not support the hypothesis that these types of behaviors have necessarily a negative effect on the development of persons with congenital blindness.

As shown in Table 2, an explicit and positive maternal affectivity accompanied the directive behaviors: of the eight Secure/Free-autonomous persons of our sample, six interviews indicated the copresence of directiveness and overprotection (Involving +) and security and love (Loving +). In one case only this copresence was not associated with a Secure/Free-autonomous state of mind. The presence of only directive and overprotective experiences (Involving +) disconnected from good affectivity (Loving −) seems, however, to imply the emergence of an insecure state of mind with respect to attachment: in our sample all four participants with a negative score on the Loving scale and a positive one on the maternal Involving scale were classified as having insecure state of mind with regard to attachment.

**Discussion**

This research does not support the thesis prevalent in literature according to which the directive and overprotective behavior of the mothers of children with blindness must necessarily have a disturbing effect on the development of their children. The data are interesting because it would seem to indicate that this behavioral modality by the mothers of persons with blindness is experienced by the latter as encouraging and functional when associated with a high score on the Loving scale, that is, when it is accompanied by an affectionate, loving and supportive attitude.

A possible explanation for these results could lie in the following considerations concerning the psychological implications of congenital blindness. It is reasonable to think that the absence of visual capacity greatly inhibits the exploratory behavior of the child with congenital blindness, and at times may block exploration if unpleasant experiences are repeated. In such situations a mother sensitive to the child’s needs will take responsibility both for the child’s needs to explore the world and to be protected from a world over which it has no control. The presence of the mother thus allows the child with blindness to create experiences which are guided and protected from the world and its complexity, experiences which a blind person could hardly perform autonomously without endangering his own safety. Paradoxically, what for a sighted child could be a limit on the freedom to explore (the urgent directive and orienting presence of the mother) may be considered, in the case of a child with congenital blindness, a useful and perhaps essential opportunity for knowledge which allows a gradual representative
internalization of the outside world and the formation of appropriate perceptive and cognitive schemas. In turn, as time passes this internalization would allow greater autonomy and greater competence in a social environment.

For the first time in the literature, this study used the Adult Attachment Interview to investigate the internal working models of a group of adults with congenital blindness. Our choice of the Adult Attachment Interview reflects how the focus of this research was not behavioral interaction between a sighted parent and a child with a congenital visual impairment, which, as Behl, et al. (1996) pointed out, is the typical experimental paradigm in this field of scientific research. Our work did not assess this manifest behavior. Rather, we asked congenitally blind participants about their childhood experiences, assessing their present mental representations and thereby working directly with their self-reported states of mind. We thus moved the focus of the study from manifest interactive behavior to underlying representational correlates. This shift of focus represents an innovation with respect to the literature. At the same time, however, it can represent one limit of our study. In fact, our sample (consisting of adults) was different from all other samples (made up of children) that have thus far yielded findings suggesting directive and overprotective maternal behaviors in the mothers of children with congenital blindness. Indeed, our experimental method did not call for the direct observation of behavioral interaction between a sighted mother and a child with blindness. We therefore prefer to remain rather cautious in generalizing our conclusions, underscoring that differences among experimental methods and assessment methods for evaluating mother-child interactive behavior should be accounted for in later studies. It will also be necessary to arrange for larger experimental samples and adequate control samples.

We would like to dedicate the last few lines of this work to other possible directions for research. We suggest that researchers investigate the themes discussed in this study, but by including one or two measures suited to assessing directly the state of the mental health of participants tested with the Adult Attachment Interview. Attachment status is important in studying psychopathological aspects, but it should not be considered an exhaustive measure of psychological health. A comparison of attachment status with any psychopathology symptoms also could be of interest. Just as interesting might be an analysis of individual attachment variations within the categories of Secure/Free-autonomous and Insecure. In fact, while the present study concerned a comparison of blind and sighted participants, researchers might conduct a within-sample analysis of congenitally blind participants.

Lastly, we believe one other important line of research might be that of a comparison of our results with those obtained from a sample of adults with late blindness, who became blind after 18 mo. of age—at a time when...
a child’s internal working models have reached stable structuring (Ainsworth, Blehar, Waters, & Wall, 1978). The aim would be to understand if the mental status of a person with total blindness, measured in terms of the attachment, might somehow depend on type of blindness (congenital or acquired), i.e., on age of onset of the visual deficit.

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