Maternal Projections and Attributions of Intentionality
*
RAB-1297853- 2008

Co-Principal Investigator(s)
De Castro, Filipa, Instituto Nacional de Salud Publica, Mexico
Hinojosa-Ayala, Nora A., Instituto de Psicoterapia, Mexico

Corresponding: Dr. Filipa de Castro

Consultant: Linda C. Mayes, Yale University

Summary of project:
It is fairly well known that infants are born with a limited capacity for auto-regulation, and that they rely on the primary caregiver to return them to homeostasis when emotionally overwhelmed by either positive or negative affective states. These inter-personal regulatory processes have been described by authors from different schools and depend on the competence of the mother to correctly interpret the infant's cues and needs (Bion, 1959; Stern, 1985; Tronick & Gianino, 1989; Fonagy et al, 1995). As already reported in previous research (Castro, 2007) this process is very likely to be compromised if the mother m
isinterprets the infant's cues. Results from this previous research work indicated that a maternal negative projection to the baby, measured at 6 months of age with one item from the Parent Stress Index (My baby does things that bother me just to be mean) held a significant relationship with disorganized attachment at 15 months and with behavioural, cognitive and impulsivity problems at 54 months, even after controlling for several other relevant variables such as maternal depression, temperament, and other socio-demographic variables (Castro, 2004; 2007). As the previous findings were based on the main effects found for a single item, for which no reliability could be tested, a new scale with 35 items to measure maternal projections of intentionality was designed and we now wish to conduct a survey using this scale as well as a measure of depression and baby temperament. This survey will collect information from 1000 mothers from the Monterrey metropolitan area with babies with less than 9 months of age.

Conclusions
Drawing on previous research evidence, and with a generous grant from the IPA RAB, our study approached the ambitious task of empirically measuring a fundamental psychodynamic mechanism which is determinant to the dynamics of early mother baby interaction and further emotional development: the maternal attributions of intentionality. To pursue this aim our collaborative study undertook a comprehensive field work to collect data from 900 women with babies less than 9 months in the Monterrey metropolitan area. Analyses of collected data was then contrasted to that of other studies to collectively provide robust evidence that 1)maternal attributions can reliably be measured; 2)depending on its type and magnitude, these attributions are a reliable indicator of both pathological and adaptive projections occurring in the early mother-baby relationship; 3)there are several risk and protective factors interacting in this process, namely maternal depression seems to increase the risk of a mother misperceiving and misinterpreting her baby; and maternal age, on the other hand, seems to be a protective factor thus making that older mothers are less likely to incur in these misattributions irrespectively of their levels of depression. During the course of this study the research team was able to identify several other opportunities for further research, which, along the main study findings, constitutes one of the major achievements of this project. Indeed, one of these opportunities already proved very pertinent resulting on additional funding being granted for further research in collaboration with the National Public Health Institute.

EXECUTIVE AND TECHNICAL REPORT

This report describes the execution of this project from its implementation on 2008 to its conclusion phase which we have just finished.

On the end of June 2008 we received a formal notification of the grant award of $9000 to support our research project. From this date onwards we worked on completing the paperwork for the transfer of the funds and on establishing the research team and first methodological considerations. There were delays in receiving the first cheque sent out by the IPA offices on 8th August 2008 and by October 2008 the cheque was declared as lost, and was cancelled and a new one had to be sent. The second cheque sent out by IPA offices was finally received on November 7, 2008.

Management structure and procedures:
The Instituto de Psicoterapia ABP having substancial experience in the successful management of clinical and research personnel was responsible for the coordination of the overall ethical, financial and administrative management of the project. It also provided its logistic coordination. As originally planned in the funding application Dr. Filipa de Castro and Dr. Nora Hinojosa oversaw the project team and specialized on coordinating different activities. Dr. Hinojosa coordinated all inter-institutional contacts and field-work implementation and execution. Data were processed and stored in elecetronic format and stored in a computer physically located at the Institute of Psicoterapia. Data was sent periodically to Dr. de Castro who was responsible for data analyses and preliminary and final report drafting. Data analyses were done throughout the project and presented in preliminary reports. Dr. Hinojosa and de Castro discussed all the material and designed a dissemination strategy which included presentation at national and international conferences as well as publication of manuscripts in international academic journals. Prof. Linda Mayes, who is co-author of the Maternal Attributions Scale with Dr. de Castro (de Castro & Mayes, 2006), provided consultation via email or telephone through all stages of the study.

Work-plan Strategy
Originally planed to run from June 2008 to April 2009, our project real time framework runned from October 2008 to October 2010. Despite these changes in timeframe, the main study phases were respected as described bellow .

Phase	Activity	Timeframe	Personnel
I	Survey organization and training of RA's	October 2008	FC, NH, RA's
II	Pre-testing (100 subjects)	March 2009-June 2009	RA's
	Preliminary Data Analyses		FC, NH
III	Data collection of final survey & Data Processing	June 2009-September 2010	RA's
IV	Data Analysis	March 2009 – November 2010	FC
V	Reporting Results	November-December 2010	FC, NH

Phase I . Project implementation   October 2008-February 2009
- Survey organization and training of RA's

While waiting for the second cheque to arrive, we started preliminary work on logistics, instrument translation and compilation. We initiated contacts for protocol approval with institutional review boards of the different health institutions involved.

Survey Preparation included compiling the different study instruments as well translating the Maternal Attributions Scale (MAS) from English to Spanish [ANNEX 1]. This was done by Drs. De Castro and Hinojosa.

Several health institutions within Monterrey metropolitan area were contacted in order to present the study protocol and foresee possible institutional collaborations. The study protocol was thus submitted for IRB approval at Hospital San José TEC de Monterrey/Escuela de Medicina ITESM, Hospital Psiquiátrico del Estado de Nuevo León, Hospital Infantil de Monterrey/Servicios de Salud de Nuevo León.

As per date February 11, 2009 we obtained the official acceptance to start collection data at Hospital Materno Infantil del Estado de Nuevo León, the Pediatric Department in Escuela de Medicina ITESM as well as in any public or private clinic in the State of Nuevo León that approved the project.

The research protocol as well as the Informed Consent Letter were both approved by the Health Department in the State of Nuevo León and Instituto de Psicoterapia Ethical Comitees.

Research Assistants were also trained at this phase, basically by becoming familiar with the study instruments, ethical procedures, consent letter use and general project logistics. Dr. Hinojosa oversaw implementation of field work. Weekly phone calls were made between Drs. Hinojosa and Dr. de Castro to discuss general project flow, logistic issues or any detail related to the project.

On March 2009 we formally started to collect data on the above mentioned places.

Phase II . Pilot   March 2009-June 2009
- Pre-testing and preliminary analyses

Recruitment of both pilot and final sample was done in those institutions previously described from which full IRB permission had been granted.

The full protocol contained the psychometric instruments which were described on our research protocol as well as a comprehensive sociodemographic questionnaire.

Our pilot was done on 177 mothers and babies from which complete questionnaires were collected between March and June 2009. According to our exclusion criteria (baby illness N=15; premature baby N=27; baby older than 9 months N=2), a total 44 of these questionnaires were not used in our preliminary analyses which comprised a final sample of

133 mothers and babies.

Data processing started at this stage and was further done in phases according to fieldwork flow. This was done at Instituto de Psicoterapia by a professional hired to this task. A Windows 7 machine was used and data was inputted in SPSS v11 format.

A preliminary report on these data collection procedure by our field-workers allowed us to ensure that there were no problems with the MAS translation and understanding of its content by the respondents. Field workers reported that overall the questionnaire was well accepted by respondents but that sometimes it was hard to have the mothers filling in complete information due to the length of the questionnaire. The application was reported to last in between 20 and as much as 45 minutes in cases where the mother took longer to answer the different items. Application of the questionnaire was further complicated in cases where mothers required assistance in holding her baby which was dealt with by the field-worker offering to sit close to the mother holding her baby while the mother filled in the questionnaire. There were no problems reported regarding understanding and signing of the consent letter.

Given the high percentage of cases falling within exclusion criteria, field workers were further instructed to apply the exclusion criteria during the application of the questionnaires by asking mothers beforehand about those details necessary to ensure inclusion.

Dr. de Castro conducted the preliminary analyses on these data which included simple descriptive analyses as well as reliability analyses for the MAS which revealed that the scales were achieving good internal consistency. These preliminary data analyses were presented at the IPA Research Training Program Fellows Meeting at the IPA conference in Chicago on the 30th July 2009 [ANNEX 1] . This meeting allowed the study investigators to consult and receive input for several pertinent questions from both Profs. Peter Fonagy and Horst Kachelle as well as from fellow researchers attending the meeting.

Phase III . Data Collection and Processing   July 2009-September 2010

On July 2009 we proceeded with the main data collection phase. At the time of the present report, the research team had collected approximately a total of 900 questionnaires, being near to accomplish the original goal of 1000 mothers.

There were several circumstances complicating the task of data collection which deserve being mentioned. After state elections, the Hospital Infantil de Monterrey, N.L. change its original name and address to Hospital Materno Infantil creating confusion among the new hospital staff with respect to our research project. The security issues across the nation, particularly in Monterrey, plus the city's flooding derived from Hurricane Alex occurring in July, heavily affected data collection. Despite this all efforts were done to ensure that questionnaires kept being collected to ensure a maximum sample size.

At several stages during this phase, we conducted preliminary data analyses and several interim reports were drafted. In January 2010 a poster reporting some of these preliminary findings was presented at the Winter Meeting of the American Psychoanalytic Association [ANNEX 3] which was selected to be published in the summer issue of the Journal of the American Psychoanalytic Association. This constituted the first formal publication reporting on

results from this project [ANNEX 4]. Issues related to data analyses are described in the next section.

Phase IV . Data Analyses   **March 2009 – November 2010**

Just as described in our study protocol, data analysis was divided in two main parts: validation of the Maternal Attribution Scale, and analyses to test the hypotheses on the association between maternal attributions, depression and baby temperament.

- Validation of the Maternal Attribution Scale (MAS)
Validation of the MAS was based in internal consistency analysis using Cronbach Alpha and construct validity. On our original research protocol it was suggested that Confirmatory Factorial Analysis were done to establish construct validity. However this was not possible due to possible violations of this technique normal distribution assumptions derived from the fact that all the negative items on the MAS were highly skewed. This was the only departure from our original plan and the strategy followed to deal with this problem is conveniently explained on our paper presented on ANNEX 4.

- Association between MAS and depression and baby temperament
First, general descriptive statistics were done to describe the sample and the measures, using simple statistical tests either univariate (means, standard deviations, etc) or bivariate (t-tests, z-tests).   Secondly, correlational analysis were done to analyze bivariate associations and finally, multivariate data analysis were used to further explore the association between all measures and more specifically to see which factors can predict maternal attributions. Again, and for proper model specification reasons we carefully selected the appropriate multivariate techniques according to the distributions of our dependent variables. More specifically, we ended up using logistic regression model and thus our reports present estimated probabilities for both positive and negative attributions.

All data were imputed in SPSS v14. Data were converted analyzed using Stata for Mac v11 and Latent Gold v4.1.

Main Findings
The main findings of this study can be divided in three main areas:

1) Maternal projections and attributions of intentionality can be reliably measured.
Reliability analysis indicated overall good internal consistency for the negative attributions scale (α = .83) and an acceptable value (α = .74) for the positive attributions scale after removing the items *I feel that my baby really likes to be close to me* and *I feel that my baby loves me.*

2) Factorial analysis indicates that both negative and positive attributions are better explained by a two factor structure
Latent class factorial analyses indicated that the best fitting solution explaining both scales was a two factor structure. Negative attributions items loaded on two factors, one related to intentions associated to behavioral aspects (e.g. *I feel that my baby throws things on the floor just to upset me*) the other related to mentalistic or emotional intentions (e.g. *I feel that my baby thinks bad things about me*). Positive attributions items also loaded on two factors, one related to empathy

and intentions to communicate (e.g. *I feel that my baby understands what I am feeling.*) the other related with intentions to please (e.g. *I feel that my baby tries to reward me*).

3) The factor structure just described seems to reflect the intrinsic differences between the different attributions type. More specifically:
- Negative mentalistic attributions seem to be the most pathological and less frequent in our sample. These can be explained by a non-lineal relation of depression and age, this is, younger mothers are at increased risk of presenting this type of attributions. Moreover, depression in this age group particularly seems to increase this risk. Older mothers, on the other hand, seem to be less likely of presenting this kind of attributions even when they are depressed.
- Negative behavioral intentions attributions are also related to depression and age, but they are slightly more prevalent in our sample.
-   Positive empathy/intention to communicate attributions are normally distributed in the sample by which it seems to indicate a more adaptive feature generally occurring within the population.
- Positive intentions to please attributions are also normally distributed but a closer inspection of these factors revealed that extreme levels of this type of attributions are related with pathological features: i)extremely low levels of these attributions are related to depression and ii)extremely high levels of these attributions are related with similarly elevated levels of negative attributions, which seems to address a simultaneously occurring idealization and devaluation of the infant which reminds the mechanism of splitting and possibly projective identification.

Scientific Production and Dissemination
Discussion and dissemination of the study main findings were a priority since the beginning of the project. The well organized field work along with a strategy of constant data processing and analyses allowed a sustained attention on the project´s immediate findings. This enabled on one hand that several details could be tackled along the project, on the other hand it generated a discussion which very much enriched the principal investigators views on the projects' main findings and implications. In these almost two years of work for this project we have had the opportunity to present results in several national and international meetings:

2008 – Instituto Tecnológico de Monterrey – **Depresión post-natal y atribuciones** [ANNEX 5]

2009– IPA conference, Chicago- **Measuring Maternal Attributions: preliminary results**[ANNEX 6]

2010 - ApsaA Winter Meeting – **Maternal Attributions of Intentionality** [ANNEX 7]

2010 – CEIP, Monterrey – **Atribuciones Maternas de Intencionalidad** [ANNEX 8]

2010 – AMERPI, Mexico DF – **Avances de investigación sobre proyección maternal e identificación proyectiva** [ANNEX 9]
The following presentations were accepted to be presented next year:

CONFERENCE: Maternal Attributions about Infant´s Intentions. 1st International Conference on Child Development, Lisbon, February 2011

SYMPOSIUM: Maternal Attributions about infant´s intentions: assessment, correlates and

sequelae. Society for Research on Child Development. Biennial Meeting, Montreal. March 2011

This symposium, which was organized and will be chaired by Dr. de Castro will bring together international experts working on the theme of maternal attributions including this project investigators, Prof. Linda Mayes, Dr. Patrick Luyten, Dr. Lisa Berlin, Prof. Ken Dodge. Additionally Prof. Stephen Reznick, who is an expert on child development who has pioneered research on this subject will lead a discussion about the symposium's findings, highlighting crosscutting themes and implications for research and intervention.

POSTER: The Correlates and Developmental Impact of Adaptive and Pathological Early Maternal Projections. IPA 47th Congress, Mexico City, August 2011

Additionally, the project has generated a publication and has another publication under final revision to be submitted:

deCastro, F; Hinojosa, N & Mayes, L.C. (2010) – Maternal Attributions of Intentionality: Measuring Adaptive and Pathological Projections. *J Am Psychoanal Assoc 58(3), 545-555*. [Annex 4]

deCastro, F; Hinojosa, N & Mayes, L.C. (in press) - The correlates and developmental impact of maternal attributions o intentionality.

Impact

First of all, by being a serious and committed research project, this project contributes to the main objectives outlined by the IPA Research Advisory Board of applying empirical methodology to the study of psychoanalytic ideas with the aim of generating innovative evidence to the field.

On the other hand, our project validates a robust new instrument to evaluate early signs of maladaptive features and severe pathology in the early mother-baby relationship, which is based on the well documented psychodynamic processes of projection, identification and projective identification. By doing this, our project meets the need for appropriate methods for the assessment of the mother-infant relationship addressed by many studies to this date which support the idea of a sensitive period in early infancy and provides evidence on the importance of the above mentioned psychodynamic mechanisms.

By investigating these processes, our main findings lead also to a better understanding of the mechanisms taking place on the early mother baby relationship and on risk and protective factors interacting in this process.

Indeed, our previous and current research reinforce the idea that at least when looking at the factors predicting child attachment disorganization and general emotional development impairment one should pay closer attention to more subtle and dynamic aspects directly related with the maternal strategies to effectively reflect and contain the child's emotions such as the maternal attributions measured by our scale.

Besides these contributions, our collaborative project between a postgraduate and clinical psychoanalytic institution and a governmental public health agency enhances the impact of a scientifically pertinent and clinically relevant findings beyond its immediate application in the

field of psychoanalysis. Indeed, it enhances interdisciplinary cooperation between two important health-related fields by facilitating the integration of a clinically – conceptually derived investigation into one that can be put into practice and positively affect the lives of many mothers and babies through its adequate translation into public health policy.

Additionally, both institutions are a priviledged base from which to devise strategies which involve practitioners in many areas likely to affect the early mother-baby relationship. In this respect both institutes can serve as a way to maximize the communication between researchers and practitioners and to involve them in the process of applying the most prominent findings of this research, namely that a simple screening procedure can be applied to timely detect at risk babies.

Additional Funding
We are proud to report that an additional positive impact of the current research project was the possibility to apply to additional funding from an highly prestigious public health international institution with funds from the Bill and Melinda Gates. More specifically Dr. de Castro successfully applied to an international call of interest, trough the Mexican Institute of Public Health, and was granted funding to an additional project which encompasses the collection of data from a further 1000 women in Mexico City as well as the follow-up of a subsample of mothers and babies at both Mexico City and Monterrey which will allow to further elucidate the developmental impact of these early maternal projections. [ANNEX 10]

Person preparing this report:
Filipa de Castro Phd
Mexico DF, December 17th , 2010