Looking at the Pre-Adolescents' and Adolescents' Verbal and Physiological Responses to Birth-Related Stimulus: A Pilot Study

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Abstract: The present study aims to examine pre-adolescents' and adolescents' mental representation of birth. Data are collected on nine mother-infant dyads. The mother's data are derived from an interview and the pre-adolescents and adolescents' data are derived from an interview, narratives from a 10-picture-set and pulse ratings measurement. In this study the Mental Representation of Birth Coding System (MRB) is developed to analyze the narratives produced by the pre-adolescents and adolescents in regards to the 10-picture-set. The narratives are coded and correlated with variables from the mother's and pre-adolescents' and adolescents' interviews. Although the results do not yield significant correlations between the mothers' and the pre-adolescents' and adolescents' interviews, they do indicate significant correlations between the mothers' interviews and the pre-adolescents' and adolescents' performance in the narratives. The results also suggest that some data from the pre-adolescents and adolescents' interviews are correlated with their own narratives as well. The pre-adolescents' and adolescents' sex do not account for any significant finding and a trend of the subjects' measurements of pulse ratings along the investigation is presented. It is thought that the MRB coding can be useful to examine pre-adolescents' and adolescents' representation of birth once it triggers situations which facilitates the pre-adolescents' and adolescents' projections of their feelings of birth and health related to birth.

Zusammenfassung: *Die Untersuchung der verbalen und physiologischen Reaktionen von Präadoleszenten und Adoleszenten auf geburtsbezogene Stimuli: Eine Pilotstudie.* Die vorliegende Studie beabsichtigt, die Vorstellungen vor Präadoleszenten und Adoleszenten von ihrer Geburt zu untersuchen. Die Daten wurden bei 9 Mutter-Kind Dyaden erhoben.

Die Daten der Mütter stammen aus einem Interview und die Daten der Präadoleszenten und Adoleszenten aus einem Interview und aus Erzählungen zu einem 10-Bilder-Set und Pulsfrequenzmessungen. Bei dieser Untersuchung wurde ein Codierungssystem für die Vorstellungen von der Geburt (MRD) entwickelt, um eine Analyse der Erzählungen der Präadoleszenten und Adoleszenten zu dem 10-Bilder-Set zu analysieren. Die Erzählungen wurden codiert und mit Variablen aus den Interviews der Mütter und der Präadoleszenten und Adoleszenten korreliert. Obwohl die Ergebnisse keine signifikanten Korrelationen zwischen den Interviews der Mütter und der Präadoleszenten und Adoleszenten ergaben, zeigten sich signifikante Korrelationen zwischen den Interviews der Mütter und den Darstellungen in den Geschichten der Präadoleszenten und Adoleszenten. Die Ergebnisse geben auch Hinweise, daß die Daten aus den Interviews der Präadoleszenten und Adoleszenten mit der Darstellung in den Geschichten korrelieren. Das Geschlecht der Präadoleszenten und Adoleszenten scheint keine irgendwie signifikante Rolle zu spielen. Die Pulsfrequenzmessungen während der Untersuchungen zeigten einen gemeinsamen Trend. Das Codierungssystem für die Geburtsvorstellungen kann nützlich zur Untersuchung solcher Vorstellungen sein, insofern es spezifische Gefühlsprojektionen mit Bezug auf die Geburt und das Befinden bei der Geburt bei Präadoleszenten und Adoleszenten erfassen kann.

Introduction

The aim of this paper is to examine to which extent pre-adolescents and adolescents are able to talk about the circumstances of their birth. Furthermore, we are interested in investigating how accurate their information are, when compared to the ones provided by their mother about the same event. Would the youngsters' information, therefore, be a knowledge transmitted by their parent(s)? Conversely, would they remember such early experience? To ascertain one's early memories is always a tactful task although it is known that early experiences are assimilated by the new born/child and such experiences may be later identified under different categories of behaviour. These early experiences are, furthermore, the elements which gradually constituted one's own personality. Still remains the question to which extent one can talk about early experience and its association with later behaviours.

But why is that such an important period of our lives is almost totally unaccessible once we grow older? And how can one really assure that verbalization of memories of early events of life does represent the real event? Concerning these questions List (1986) assures that children remember less information that adult but these information are to be considered accurate ones. Then, what is the time course of memory? In a recent paper McDonough and Mandler (1995) give us evidence that preverbal recall is possible from the very beginning of life. They studied the responses of 11-month-old babies in a short period of observation learning and they concluded that some of the information could be retrieved after 24 hours and even so early in life (11 months) those children were able to remember some events after three months it had happened. McKee and Squire (1993) talk about children's accessible memory of very early important events which could be retrieve from the child's second year of life.

Different investigations have concluded that 3-year-old children are able to recall events which are meaningful to them (Ornstein, Gordon, and Larus 1992;

Goodman, Rudy, Bottoms, and Aman 1990) and, furthermore, at this age they are able to discriminate different situations which provokes different emotions (Stein, Wade, and Liwag 1996).

These assumptions question the notion of the infantile amnesia and offer a different perspective, i.e., not all the events in early childhood are forgotten and as suggested by Bullock and Newcome (1995, p. 550) 'infantile amnesia may most reasonably be thought of as a relative rather than an absolute phenomenon: people recall less than might be expected about their early childhood'. In that same paper the authors agree that the cognitive development as well as the children's sense of self and theory of mind could explain in part the waning of the infantile amnesia but, according to their views these explanation would not be enough to explain the phenomenon itself.

But the difficulties in investigating early memory are much wider and one could ask what is the role of the interviewer on the children's answers? Moston (1992) suggests that an 'authoritative or emotionally cold' interviewer affects children's accuracy and subjectivity. Despite the accuracy of the memories retrieved it is also argued that the emotion-related cues may also influence the content and structure of the memories (Bower 1992; Reisberg and Heuser 1992). Furthermore, should not one first define what kind of memory is to be examined? Would implicit and explicit memories play the same role in the infantile amnesia? Which memory would be easier to be evoked and what would be the cues used to evoke it? Once the memories of emotional experiences are evoked are they more likely to be verbal or nonverbal communicated? According to Stein, Trabasso, and Liwag's study (1993), the retrieval of early memories concerning emotional experiences involves the activation of both verbal and non-verbal representations. This finding is corroborated by other studies (Johnson 1992; Stein, Wade, and Liwag 1996) when the authors are also concerned with the effect (role) of chosen emotional cues to evoke such memories as well as how much non-verbal memories can be expressed.

In Liwag and Stein's (1995) study the authors believe that by reinstating the original emotion reaction the content and the organization of memory for emotional events may be affected. Emotional provoking situation is to be understood as 'events that cause an unexpected change in some aspects of a person's physical or psychological well-being' (Liwag and Stein 1995, p. 3). They use three cues, such as: 1) labelling the emotion, 2) facial expression correspondent to the emotion and 3) reinstating the emotion experienced in the original situation.

The present paper proposes the investigation of the youngsters's verbal and non-verbal responses to an emotional situation: their circumstances of birth. Our investigation is concerned with the matter of what is the youngsters's factual memory of their situation of birth and what is the "physiological memory" of the same event? Could these memories be correlated to each other? Which are reliable variables and instrument to assess early memories concerning the circumstances of birth?

In this paper we try to explore what are the pre-adolescents and adolescents' verbal and physiological responses to some pictures concerning birth, health and illness in new born babies. We aim to examine whether the content of the narratives produced by the children in our study is related to the youngsters's own circum-

stances of birth. Concerning their circumstances of birth, as referred by them, we also wonder to which extent the information are memories of the event or they are associated with the information provided by their mother, i.e., how much of what they inform about their very early life is a transmission of a knowledge which comes from their mothers. Or, conversely, could the content of the narrative be completely independent and dissociated from the objective facts (as related by the mothers)? Sink (1988) concluded that children tend to talk about the events in the same way their mothers do more than in the way they (events) really happened.

In line with the investigation concerning children's memory being built up within their relationship with their mothers Fivush (1993), assures that when the mothers talk to their children and ask them questions, they are contributing a lot for the development of their children's autobiographical memories. Would this be also true when the children are older, i.e., when they are in their early adolescence? Another important information in our study is derived from the measurements of the youngsters' pulse ratings. We checked how stable or oscillating these measurements are along the experiment and, furthermore, if there are any changes, how they are associated with different feelings triggered by the experiment. Could the pulse ratings measurement be used as a possible indicator of the youngsters's memories of their own early experiences concerning the situation of birth, health or illness at birth, which are not possible to be verbally informed? Based on the above questions we designed a pilot study whose method and results follow.

Method

Participants

Nine mother-infant dyads volunteered themselves for this pilot study. The participants were white from middle-class and well educated families. The youngsters's group is constituted of three boys and six girls with median age of 12 years (ranging from 11 to 14 years). Eight of them are attending secondary school and one of them is attending special school. Concerning the mothers, their median age is 44 years (range from 37 to 51 years); five of them are currently living with the father of the child; they have/are about to have university degrees and they all have a full time job. One of these dyads has English as its second language.

Procedure

The mother-infant dyad was explained about the aim of the study so they could agree in participating in this step of piloting some instruments. Once they volunteered themselves arrangements were done for them to be assessed in their homes. The mothers signed a Consent Form for the assessments to be tape recorded and the results to be used for teaching purposes providing that anonymity is respected. Mother and youngster are assessed separately.

Concerning the mother: the mother is interviewed (tape recorded) concerning her circumstances of pregnancy and labour of that particular child involved in the experiment. The interview involves information, such as details on the labour, on the child's circumstances of birth and the mother's evaluation and feelings at the time of labour/birth.

Concerning the youngster: the data is derived from three instruments:

1) A tape recorded *interview* is also done with the youngster. He/she is asked about some precise information at birth, such as locality and date of birth, weight and length and circumstances of birth and also about the mother's feelings around the time of the birth;
2) A *10-picture-set* is presented, one by one in the same order, and short narratives are expected to be produced about each picture. These pictures involve babies in hospital; babies in incubators; babies with and without the parents; babies and nurse/doctor;
3) A pre-test/post-test *pulse rate* was employed. A non-invasive, non-harmful instrument is clipped on the subject's tip finger before, during and after the two above tasks.

Mental Representation of Birth Coding System

This coding system has been developed in order to assess the youngster's representation of birth. Some pictures show healthy looking new-born babies other show new born babies in situations which may suggest distress, i.e., in incubators and with tubes in their mouth. Other pictures are ambiguous in the sense that it can be taken as a distress or non-distress situation. Some pictures show adults involved with the baby in hospital and in some pictures the babies are on their own. The coding consists of 12 scales for which different ratings should be given. Each picture shall be codified by rating each one of the 12 scales and a manual is provided for the coding. Follows a brief indication of the coding:

Scale No 1   Gender identification – whether the subject identifies him/herself with the baby in the picture;
Scale No 2   Identification of adult's feelings – whether the subject identifies the adult's feeling and if so, what kind of feelings;
Scale No 3   Identification of baby's feelings – whether the subject identifies the baby's feeling and if so, what kind of feelings;
Scale No 4   Identification of the atmosphere of the environment;
Scale No 5   Indication of baby's health – whether there is any comment on the baby's health;
Scale No 6   Explanation of baby's condition – possible understanding of the illness/problem;
Scale No 7   Outcome of the problem (if any) – what happens, who is involved in the situation;
Scale No 8   Identification of the baby's condition – whether the subject identifies the severity of the situation (prematurity and incubators);
Scale No 9   Personalization – whether the subject brings into the narrative his/her circumstances of birth and if so, how does he/she do it;
Scale No 10 Presence of pain – identification and verbalization of suffering in terms of physical pain;
Scale No 11 Personal appreciation of the picture – whether the subject comments on the pictures and, if so, on specifically what;
Scale No 12 Concept of prematurity – subject's understanding of prematurity.

Exploring pre-adolescents' and adolescents' mental representation of birth-related situations: a coding system

This is a 12-scale coding and it aims to examine the adolescents' verbal responses to a 10-picture-set of birth/baby's health-related situations, e.g., babies, incubators, doctors, mothers. Some of the pictures are clearly indicating that the baby is under stressful situation (e.g., being in incubator, with ventilator, tubes etc. In some pictures the baby and/or the baby and the adult look relaxed, contented. Some pictures are ambiguous in the sense that it can be interpreted as a stressful or non-stressful situation.

Each picture is coded separately, i.e., for each picture the 11 scales must be applied and just one number must be given in each scale.

1 Gender identification (GI): the subject refers to the baby in the picture using he or she according to one's own sex.
  1 yes or if the subject uses "I". See also Scale No 9
  2 in the narrative the baby's sex is opposite to the subject's
  3 the subject explicits not being sure about baby's sex
  4 no reference at all to the baby's sex.

2 Identification of adults' feelings (IAF): the subject explicits the adults' feelings.
  1 positive: the person is happy, cheerful, peaceful, pleased, relieved, helpful
  2 negative: the person is unhappy, miserable, horrified, terrified
  3 the person is concerned, worried, scared, shocked, nervous, sad insecure, upset
  4 ambivalent: opposite feelings (positive (1) and negative (2))
  5 mixed feelings: exclude the combination 1+2 and includes 1+3; 2+3, e.g., worried/happy; worried/miserable; upset/terrified
  6 adults' feelings are not mentioned at all

3 Identification of baby's feelings (IBF): the subject explicits the baby's feelings.
  1 positive: the baby is happy, cheerful, peaceful, smiling, comfortable
  2 negative: the baby is unhappy, miserable, crying, uncomfortable
  3 the baby is concerned, worried, scared, sad,
  4 ambivalent: mixed feelings (positive and negative)
  5 baby's feelings are not mentioned at all.

4 Identification of the atmosphere of the environment (IAE).
  1 atmosphere of worry, unhappiness, mixed feelings – no specification of being these the baby's or the adult's feelings – it concerns the situation
  2 atmosphere of warmth, happiness, mixed feelings – no specification of being these the baby's or the adult's feelings – it concerns the situation
  3 atmosphere of mixed feelings
  4 no coments on the atmosphere

5 Indication of baby's health (IBH): any comment concerning health such as: the baby is well; something is wrong with the baby; something is wrong with specific part of the baby's body or organ.
  1 the subject explicits that the baby is/has been ill or that there is/there might be something wrong with the baby; dangerous, uncertain, difficult situation because the baby is too small, too early; it has got tubes into its mouth, nose; problem with bood pressure, temperature; parents are concerned with the baby's health
  2 the subject does not mention any problem concerning the baby's health
  3 the subject explicits how well, healthy the baby looks
  4 the subject explicits that the baby needs help/is being helped

6 Explanation of the baby's illness (EBI): attempt to explain why something is wrong with the baby.
  1 baby's problem is related to birth - it includes the baby needs to be in the incubator; the baby is premature, too early or small (it does not include being in the incubator just as a statement if there is no explicit problem and/or no need of help- in this case see Scale No 8)
  2 baby's cause of problem is unknown or vague explanation, e.g., the baby is like that because it is not well
  3 identifies the illness or specifies part of the body which is not functioning well (the heart, the breathing, . . .) but there is no explanation for the problem
  4 no attempt to explain the cause of the problem
  5 no problem is mentioned
  6 baby's problem is the mother's fault – there is an explicit relationship between the mother and the baby's problem, e.g., the baby is ill because the mother took drugs, the mother was not healthy or the mother produced a small, early baby
  7 baby's problem is due to external, explicited situations – it is related to the doctor, to the hospital

7 Outcome of the problem (OP): it concerns how the problem/illness is going to progress.
  1 the baby receives or is going to receive treatment without mentioning the results of the treatment – it does not include statements concerning the baby in the incubator which should be marked in the Scale No 8
  2 the baby is going to get or got better, is going to survive or survived
  3 the baby is going to get worse/die (death related to this problem and not due to ageing); is dead
  4 the progress of the problem is not mentioned
  5 no problem is mentioned

8 Identification of the baby's condition (IBC): this embraces whether the baby is premature (or early) as well as where the baby is.
  1 it is a premature, small, early, pre-term baby
  2 the baby is in the incubator, machine, cabinets
  3 the baby is in hospital
  4 it is a premature baby in the incubator, in the machine, in hospital
  5 no reference to the baby's condition

9 Personalization concerning one's own circumstances of birth (PCB): the subject brings into the narrative his/her own circumstances of birth such as: I was also a premature baby; my mum was also worried when I was born; I was not small like this baby.
  1 personalization of the mother
  2 personalization of the subject
  3 referring someone else such as friend, relative . . .
  4 no personalization at all
  5 the whole story is told "I"/"my mother".

10 The presence of pain (PP): explicit indication that the baby is in physical pain whilst in or out of the incubator, e.g., the baby is in pain; the baby is suffering; the baby is physically distressed.
  1 in pain because of medical procedure
  2 in pain because of the own state of illness
  3 no pain at all

11 Personal appreciation of the pictures (PAP): apart from making up a narrative the subject expresses his/her feelings in relation to the picture (s), such as: it is a nice picture; it is a lovely baby; I do/not like hospitals; I do/do not feel sorry for this baby.
   1 appreciation of the picture
   2 appreciation of the baby
   3 appreciation of the context
   4 no appreciation at all
   5 appreciation of the adult

12 Concept of prematurity (CP): the subject says that the baby is premature and gives his/her understanding about prematurity.
   1 baby not being ready
   2 baby being damaged
   3 prematurity related to illness
   4 prematurity is not mentioned
   5 prematurity is not explained

Coding

The tapes were transcribed and one tape was used for practice to ensure that the same criteria were being used. Two judges did independent coding and the inter-rater agreement (Pearson Correlations) was 0.89. The data derived from the coding of the narratives were analyses by the youngsters' pulse ratings before, during and after the task and the results were also correlated with the mother's and the youngsters' interviews.

Result

The present section presents the results concerning the analyses of nine mother-youngsters dyads and it is going to be presented in different stages: 1) the correlations between the mothers' and the youngsters' interviews; 2) the correlations between the mothers' interviews and the youngsters' narratives; 3) the correlations between the youngsters' interviews and narratives.

Correlations Between Mothers' and Youngsters' Interviews

Questions were equally made to both the mothers and the youngsters concerning general circumstances, such as: the mothers were asked about the chcircumstances of the labour/birth of her child (the one involved in this study) as well as in which circumstances the mother thought the baby was relaxed/stressed. In the interviews the mothers were asked about their feelings at their baby's birth; in which circumstances the mother herself was stressed/relaxed and which were the mother's thoughts at the time of the baby's birth. The youngsters were asked how they think their mothers felt, what made their mothers stressed/relaxed around the time of their (youngsters') birth. Surprisingly, out of these questions just one correlation between the mother's and the youngster's answer proved significant ($r = .020$), which concerns the view of the pre-adolescent/adolescent (baby at the time) being relaxed. Both the mother and the youngster informed that the relaxing time involved situations in which the baby was being fed and well looked after by the parents, specifically by the mother.

The lack of more significant correlations suggests that the information provided by the youngsters about the circumstances of their birth are almost completely independent of the information as provided by their mothers as presented in their independent interviews. Interesting that the pre-adolescents/adolescents tended to give the information without informing the source of the information, e.g., I stayed in hospital …, I was born early … They did not say not to remember the facts but they would say they do not know the facts. The way they refer to their mothers' feelings about the birth is always in a positive way, i.e., they say the mothers were happy, excited and everything was or turned out to be alright. There was only one case where it was said that the mother was frustrated for she would have preferred to have had a baby of the opposite sex, which in fact coincided with the mother's information. Apart from this only indication of frustration and not happiness the other answers do not indicate any negative feelings. Conversely, the mothers would use both positive (exciting, wonderful, marvellous) and negative terms (traumatic, disappointing, frustration, awful and horrible) to describe some situations at the time of their children's birth.

It may be possible that since the youngsters do not know the facts around the time of their birth they start making up their own histories which are representation of their desires where everything should have been happiness and acceptance. Another possible explanation is that these information do not correspond to their knowledge or feelings but they are used to deny their perceptions that there were negative situations around their birth. To corroborate this second explanation further discussion is presented based upon the correlations between the mothers' interviews and the youngsters' narratives.

Correlations Between the Mothers' Interviews and the Youngsters' Narratives

From the mothers' interviews three variables proved to be significantly correlated with the youngsters' narratives, as shown in Table 1: mother's own feelings at the time of the child's birth (MOF) is negatively correlated (r = .050) with youngsters' personalization of their own circumstances of birth (PCB).

Table 1. Inter-correlations between the variables of the mothers' interviews and the variables of the youngsters' narratives

Scales	IAF	IBF	PCB	PAP
MEB	.5968*	.7526*	−.6030*	
MSBS				−.6537*
MOF			−.5828*	

1 tailed signif. * p<.01

The more the mothers say they were happy at the child's birth the less the youngsters bring their own feelings and identification with the pictures.

Interestingly that when they personalize (bring real events to the narrative) they do not mention the mother but 'a friend or a relative'. Another significant negative correlation (r = .028) is yielded between the way the mother saw the baby stressed (MSBS) and the youngsters' evaluation of the situation of pain ((PAP).

Although the mothers indicated that the children were stressed when they were ill, taken to the doctor and given injections, none of the youngsters refer any painful situation, i.e., the more the mothers talk about illness the less the youngsters talk about pain in their narratives.

The third significant variable from the mother's interview is the way mothers evaluate the children's circumstances of birth (MEB). MEB is correlated with three variables of the youngsters' narrative:

1) MEB is positively correlated (r = .045) with the way the youngsters identify the adult's feelings (IAF) in the pictures, i.e., the more the mothers evaluate the labour/birth as having being stressful, painful and difficult the more the youngsters verbalize that in the pictures the adults are worried and with mixed feelings, such as: worried; worried and upset; worried and happy.

2) MEB is positively correlated (r = .010) with the way the youngsters identify the baby's feelings (IBF) in the pictures. As it had happened in the identification of the adult's feelings, the more the mothers talk about a traumatic, difficult and painful labour, the more the youngsters refer to the babies in the pictures as having mixed feelings, such as: the baby is comfortable but worried; the baby is smiling but scared.

3) MEB is negatively correlated (r = .043) with the youngsters personalization (PCB). The more difficult and unpleasant the labour is, according to the mothers' views, the less the youngsters bring their own circumstances of birth into the narratives.

So far one can observe that although the youngsters used basically positive terms in the interviews to describe their mothers' feelings and evaluation of their (children's) birth, in the narratives they can show mixed feelings evoked both in the children and in the mothers. This finding suggests that in a direct approach such it happens in an interview, the youngsters tend to avoid situations in which may be involved negative or mixed feelings whilst they can express these feelings in a projective task as offered by the 10-pictures-set.

Correlations Between the Youngsters' Interviews and Narratives

From the youngsters' interviews three variables proved to be significantly correlated with their own narratives, as shown in Table 2: 1) the circumstances the children used to crying the most (CCM); 2) the circumstances the children were relaxed (CR) and 3) how the children refer the mothers' feelings at the children's birth (CMF). Interestingly, these variables of the youngsters' interviews are correlated with the same four significant variables correlated with the mothers' variables of the interview, as shown in Table 2.

The circumstances in which the child cried most (CCM) is positively correlated (r = .028) with identification of adult's feelings (IAF), which suggests that the more the youngsters said they cried when they were hungry, thirsty, sleepy or with a strange, the more they identify the adults as being worried and/or having mixed feelings. The circumstances in which the child was relaxed (CR) is correlated with two variables:

1) it is positively correlated with identification of baby's feelings (IBF) (r = .033): the more they say in the interview that they were relaxed in the presence of the parents, especially in the presence of the mother, they either do not

Table 2. Inter-correlations between the variables of the youngsters' interviews and narratives

Scales	IAF	IBF	PCB	PAP
CCM	.6523*			
CR		.6349*		.5982*
CMF			-.6614*	

1 tailed signif. * p<.01

mention the baby's feelings in the narratives or, if they do so, they refer to them as having ambivalent feelings.

2) CR is also positively correlated with personalisation of the picture (PAP) (r = .044). This suggests that the more the youngsters indicated that they were relaxed with the parents/mother or being fed and looked after the more they stopped themselves from making any personal comments on the pictures. CMF is negatively correlated with PCB (r = .026): the more the youngsters say the mothers felt happy and excited at their birth the less these youngsters personalize the narratives, i.e., in the interviews the mothers felt happy and excited and in the narratives there are no personal comments at all of their circumstances of birth concerning either their or their mother's feelings. It is important to be observed that out of the 11 scales of the new developed coding system, four of them proved to be significant when correlated with the variables of both the subjects's and the mothers' interviews.

An interesting indication of the youngsters' physiological responses is indicated by the measurements of pulse ratings during the experiment concerning both the interview and the construction of the narratives. Before the tasks (interview and narratives to be made up), the youngsters' pulse ratings median was 96.5 (range from 80 to 110) and this median went up when the measurement was taken during the tasks: in the interview the score is slightly higher than the one registered in the narratives. When the pulse ratings were taken after the tasks one observes that there was a decrease in the measurements in both tasks although in the narratives there is a decrease slightly superior than the one observed in the interview.

These results suggest that there is an oscillating trend in the youngsters' pulse ratings along the experiment and, furthermore, one can speculate that such oscillating trend indicate the youngsters' physiological answers to birth-related situations: although some narratives and/or information from the interview do not indicate any stress the physiological responses indicate oscillating levels of stress along the experiment. This finding supports the notion that physiological measurements should be taken into account when verbal responses to emotional situations are assessed.

One way analysis of variance were performed on the scores of the variables of the subjects's interviews and narratives by sex. No one significant finding was yielded. These findings indicate that the subjects's sex does not account for any significant scale of the subjects's interview or narratives.

Discussion

One of our initial question concerned the fact whether information of early events in life is a transmission of memory, i.e., if the pre-adolescents/adolescents tell circumstances of their own birth in the same way their mothers do. This preliminary study indicates that through the youngster's interviews one can assure that there is no transmission of memories: they did not tell the story in the way their mothers did. This finding does not corroborate the notion that the mothers' way of telling stories and talking to their kids does account for the way the kids remember the facts (Sink 1988; Fivush 1993). One possible explanation is that this principle does not apply to the situations where the subjects are older, as in our study when they are in their early adolescence. Another possible way of understanding this is that mother-child/youngster do not talk about circumstances of birth. Both situations could implicate in the fact that the youngsters would make up their own histories, as it happened.

Conversely, we inferred that the 10-picture-set can be used as an emotional cue and it did trigger different emotions during the assessment which could not be retrieved by a direct approach in the interview. This result corroborates previous study (Liwag and Stein 1995) where it is said that emotional situation should be retrieved by using emotional cues. Our results suggest that physiological measurements (pulse ratings in our study) should always be taken into account when verbal behaviours are assessed. Based on this study we think that the MRB coding system has shown to be sensitive to examine the youngsters' responses to birth-related stimulus.

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