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Pertinence of the self-report mother-to-infant bonding scale in the neonatal unit of a maternity ward ☆

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ABSTRACT

Objective: To assess the relevance of the self-report Mother-to-Infant Bonding Scale (MIBS) to evaluate mother-infant bonding in the neonatal unit of a maternity ward.
Material and methods: Forty-eight hours after delivery, 78 mothers responded to the MIBS, the Edinburgh Postnatal Depression Scale (EPDS), the Adult Attachment Questionnaire (AAQ), and the Mother's Assessment of the Behavior of her Infant (MABI) questionnaire. They were then interviewed 24 h later by a pediatric psychiatrist, who assessed the mother–infant relationship. The neonatology nurses also filled out the MIBS, imagining the mothers' responses, and responded anonymously to questionnaires on the use of the MIBS in their daily practice.
Results: MIBS satisfactorily detected difficulties in mother–child bonding: the area under the ROC curve was 0.93, with a sensitivity of 0.9 and a specificity of 0.8 for a threshold score ≥ 2. MIBS was independent of EPDS ($r = 0.11$, $p = 0.29$) and AAQ ($r = 0.05$, $p = 0.63$). However, it was influenced by the infant's behavioral characteristics ($r = 0.3$, $p = 0.01$). MIBS scores of the mothers and nurses showed low correlation ($r = 0.31$, $p = 0.004$) and the item-by-item responses were rarely concordant. Fully 100% of the nurses stated that the MIBS was helpful in evaluating mother–child bonding and 85% of the mothers found it beneficial.
Conclusion: New mothers need to express their feelings about their babies, as hospital staff observation of mother–infant interactions is not sufficiently reliable for assessing the attachment process. The self-report MIBS is a useful tool for detecting difficulties in early mother–infant bonding.

1. Introduction

Early evaluation of the mother–infant relationship is a priority in the neonatal unit for several reasons: bonding is vital to the infant's psychoaffective [1–3] and physical [4] development and early detection of bonding difficulties allows swift intervention that may prevent future child abuse [5]. Over the past several decades, there has been a trend in industrialized countries toward shortened hospital stays for mothers and their newborns [6]. This has intensified the need for practical tools that neonatal professionals can use to evaluate this relationship while the mother and her baby are still in the unit.

The mother–infant bond refers to the affective dimension in the mother–infant relationship. It has much to do with a mother's representations: the emotions and sentiments that the mother has for her child, as well as her cognitions about him or her [7,8]. Mother–infant bonding after birth is assumed to be an adaptive mechanism that is biologically driven, mainly by ocytocin [9]. Bonding is encouraged by physical contact [10,11] between the mother and the baby and the quality of the bond can be influenced by several factors, some from the baby, such as prematurity, physical pathology, or "irritable temperament" [12,13], and others from the mother, including her style of attachment, her support network [10], the development of physical illness, postpartum depression [14–16], and other psychiatric disturbances [17,18]. Although most mothers experience a uniquely maternal wave of affection for their baby just after birth, the onset of this affection is delayed anywhere from a couple of days to some weeks in 10–40% of new mothers, without in any way being abnormal [19,20].

Over the past 30 years, many studies have focused on the disorders of bonding [17,19–21]. According to Klier, these disorders can be defined as a lack of maternal feeling, irritability, hostility or

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aggressiveness, pathological thinking, and rejection of the infant [15]. For other authors, bonding disorders do not form a single entity but are rather a set of overlapping clinical states with various morbid elements in the relationship with the infant [20,21]. The prevalence of bonding disorders in the general population is thus difficult to evaluate because of differences in clinical definitions and the lack of standard diagnostic criteria [20]. Bonding disorders are often associated with psychiatric disturbances, most often with depression. However, in 20 to 30% of the cases, bonding disorders arise with no psychiatric context whatsoever [17,19], which underlines the importance of early postnatal evaluation.

The Mother-to-Infant Bonding Scale (MIBS) was initially devised as a means to investigate disturbances in mothers' feelings toward their newborns [22]. This questionnaire is short and simple and can be used immediately after birth or shortly thereafter.

We hypothesized that the self-report MIBS would provide the staff in a neonatal unit with practical help in detecting those mothers experiencing bonding difficulties and in need of individualized attention during the hospital stay. The main objective of this study was therefore to determine whether the MIBS would detect difficulties in mother–infant bonding in the neonatal unit of a maternity department. The secondary objectives were to determine the factors that influence maternal responses to the MIBS and to assess its acceptability for mothers and hospital staff.

2. Material and methods

This prospective study was carried out from February to April 2008 in the neonatal unit of the maternity ward in a university hospital.

2.1. Patients

2.1.1. Inclusion criteria

Mothers who met the following criteria were invited to participate: hospitalization with their newborns in the neonatal care unit, at least 48 h since the birth, and written informed consent from both parents.

2.1.2. Exclusion criteria

The exclusion criteria were as follows: refusal of one of the parents to participate, inability of the couple to read the documents in the language of presentation (French), and mothers whose babies had been hospitalized for fewer than 48 h.

2.2. Protocol

2.2.1. Self-report questionnaires filled out by the mothers

From 48 h postpartum, the study was orally presented to the parents and a written explanation was also offered. The mothers were asked to complete the following questionnaires within 24 h: the MIBS [22], which is composed of 8 items scored from 0 to 3, with a total score ranging from 0 to 24 and high scores indicating disturbance in the mother–infant bond (Table 1); a closed-response questionnaire to evaluate the acceptability of the MIBS for the mothers; the Edinburgh Postnatal Depression Scale (EPDS of Cox J et al. 1987 [23] or [24]), which is scored from 0 to 30; the Adult Attachment Questionnaire (AAQ [25]), which is composed of 13 items evaluating the mother's attachment style; and the Mother's Assessment of the Behavior of her Infant (MABI [26,27]), an instrument derived from Brazelton's Neonatal Behavioral Assessment Scale [13] and designed so that mothers can evaluate their infant's behavior. The items can be scored from 1 (optimal score) to 3 (minimal score). For twin births, the mothers filled out a MIBS and MABI questionnaire for each child.

2.2.2. Interview with the pediatric psychiatrist

At least 24 h after responding to the questionnaires, the mothers and their infants met with a pediatric psychiatrist, who evaluated the mother–infant bond. At this time, bonding difficulties were documented when appropriate. The interview was semi-structured and the psychiatrist worked from an observation sheet that had been constructed before the study began. The context of the interview was documented, notably the presence or absence of the father and baby. Information on the mothers' support network was sought, particularly the degree of support from the father, family and friends. Details on the pregnancy and delivery were requested in order to determine whether the pregnancy had been planned, whether it had been characterized by anxiety or depression, and whether the delivery had been very painful or marked by feelings of panic.

The next part of the interview was unstructured, with the psychiatrist prompting the mothers to talk about their interactions with the baby and how they felt in this relationship, especially regarding feelings of pleasure or disappointment. Their sentiments for the baby were explored, as well as what they had felt about the baby from birth up to the moment of the interview.

The mothers' responses to the MIBS were also brought up. When bonding difficulties had been suggested by their responses, this provided an opportunity to address the issue and receive help in resolving it.

Toward the end of the interview, together with the mothers we looked over their responses to the specific questionnaire evaluating the acceptability of the MIBS. To conclude, the mothers were asked whether they thought the opportunity to talk about their emotions with nursing staff, based on a questionnaire and/or interview, had been helpful and whether they thought it would be helpful for others.

2.2.3. Questionnaires filled out by the neonatology nurses

The neonatology nurses also filled out the MIBS during this period, imagining what a given mother's feelings might be about her baby, based on observation and any information confided by the mother. They filled out two other questionnaires, as well: once before the study about their practices in evaluating the mother–infant relationship and bonding and once after study completion on their perceptions of the MIBS.

2.2.4. Other data

The following information was documented from the mother's obstetric record or from direct questioning: whether the pregnancy had been planned; the mother's medical history, including difficulties conceiving, miscarriages, past infertility, abortions, medical abortions, in utero death, and neonatal death; the course of the pregnancy, which was considered abnormal is any of the following medical events occurred: positive testing for trisomy 21, fetal malformation detected, gestational diabetes, intrauterine growth retardation, infection, or risk of premature birth; and the mother's experience of the pregnancy, which was considered as difficult when psychological

Table 1
Mother-to-Infant Bonding Scale (MIBS). *Instructions to mothers.* This questionnaire is about your feelings for your child. The adjectives listed below describe some of the feelings mothers have for their babies in the first weeks after birth. For each word in the left column, please make a tick in the box that best describes how you feel. The numbers in the rows corresponds to the weights given to the potential responses. These numbers did not appear on the self-report questionnaires that the mothers filled out. For each mother, the numerical values corresponding to each of the ticked boxes were added to obtain the MIBS score.

	Very much	A lot	A little	Not at all
Loving	0	1	2	3
Resentful	3	2	1	0
Neutral or felt nothing	3	2	1	0
Joyful	0	1	2	3
Dislike	3	2	1	0
Protective	0	1	2	3
Disappointed	3	2	1	0
Aggressive	3	2	1	0