



Original Article

Maternal cognitions and depression in childhood behavioral insomnia and feeding disturbances

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ARTICLE INFO

Article history:

Received 5 August 2012

Received in revised form 21 October 2012

Accepted 23 October 2012

Available online 20 January 2013

Keywords:

Sleep

Infancy

Insomnia

Feeding

Children

Maternal

Cognitions

Depression

ABSTRACT

Objectives: To investigate (1) maternal cognitions regarding infant's sleep and feeding and maternal depression among mothers of children with behavioral insomnia, feeding disturbances and healthy controls, and (2) the association between maternal cognitions about sleep and those about feeding.

Methods: Children 6–36 months of age with either behavioral insomnia or feeding disorders were recruited. Children 6–36 months of age who attended the well-baby clinics were recruited and served as controls. The participants' mothers completed three questionnaires on their cognitions/perceptions of their child's sleep and feeding habits and about their own feelings of depression.

Results: A total of 230 children (31 with behavioral insomnia, 29 with feeding disorders, 170 controls) were enrolled. Their mean age was 16.1 ± 7.6 months. Maternal cognitions/perceptions about sleep (maternal cognition infant sleep questionnaire, MCISQ) did not differ significantly between the behavioral insomnia group and the feeding disorders group. The MCISQ score was significantly higher in the behavioral insomnia group compared with controls ($P < .02$). Mothers of children with feeding disorders reported being significantly more frustrated or anxious when they fed their child ($P < .0005$), less confident about their child getting enough food ($P < .0005$), and less confident in their ability to manage their child's behavior at mealtime ($P < .02$) compared to the controls. Significant positive correlations were found between the MCISQ scores and the Beck Depression Inventory scores ($r = 0.29$, $P < .0002$), and between the MCISQ scores and the maternal cognitions of their child's feeding scores ($r = 0.26$, $P < .0002$). The latter remained significant after controlling for maternal depression ($r = 0.25$, $P < .002$).

Conclusions: Mothers of children with either behavioral insomnia or feeding disorders differ significantly from mothers of controls regarding their cognitions about sleep and feeding. Maternal cognitions about infant sleep behavior correlated with their cognitions about infant feeding. Maternal cognitions are a modifiable factor that may serve as a target for intervention in both sleep and feeding disorders in children.

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1. Introduction

Behavioral insomnia of childhood affects up to 30% of children 6–36 months of age [1–3]. The clinical manifestations consist of difficulty in falling asleep, staying asleep or both. These difficulties usually reflect certain established patterns of interaction between

parent and child at times of sleep transition [1,4,5]. For example, active parental soothing at the time of sleep initiation, can contribute to bedtime difficulties and night wakings, since repetition of bedtime behavioral practices may be required to reinitiate sleep following normal nighttime arousals. If left untreated, bedtime problems and night awakenings can negatively impact daytime functioning and behavior on the part of the child as well as the entire family [5].

Feeding difficulties are common in pediatric practice and range from physiological difficulties in ingesting food and picky eaters, to full-fledged feeding disorders. These may include inappropriate/disruptive mealtime behaviors, food refusal, inadequate self-feeding skills, excessive mealtime duration, and food selectivity [6–9]. The prevalence of problematic eating and feeding behaviors is

Abbreviations: ICSD, International Classification of Sleep Disorders; MCISQ, Maternal Cognition Infant Sleep Questionnaire; BPFAS, Behavioral Pediatrics Feeding Assessment Scale; BDI-II, Beck Depression Inventory – II.

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25% in infants and young children [6–9]. If prolonged, these behaviors can lead to weight loss or failure to gain weight and to cognitive and developmental delays [10,11].

Behavioral insomnia and feeding difficulties are major sources of concern for parents and frequent reasons for seeking medical help [5,12]. It is believed that caregiver characteristics, child temperament and parent–child interactions play a significant role in the development of both sleep and feeding disturbances. In a recent study from our group, we have shown that problematic sleep and feeding behaviors tend to coexist in early childhood [13]. We postulated that these two common conditions share common parental characteristics, child characteristics and/or parent–child interactions. Maternal depression and cognitions (i.e., beliefs, expectations, and interpretations) regarding sleep and feeding, are examples of maternal characteristics that may be involved in this coexistence. It has been shown that maternal cognitions and expectations influence parent–infant interactions around bedtime, which in turn influence infant sleep patterns [14,15] and that maternal core beliefs are important in the development of feeding problems [16]. Understanding of the psychological mechanisms that determine the mother's behavior is important for designing clinical interventions aimed at preventing and treating childhood sleep and feeding problems. Therefore, the aim of the current study was to investigate maternal cognitions regarding infant's sleep, infant's feeding and maternal depression, of mothers of children with behavioral insomnia, children with feeding disturbances and control children who never sought professional consultation for sleep or feeding problems. We hypothesized that mothers of children with either behavioral insomnia or feeding disturbances differ in regard to their cognitions/perceptions about sleep and feeding from mothers of the controls and that problematic maternal cognitions about sleep are associated with problematic maternal cognitions about feeding.

2. Methods

Children between 6 and 36 months of age who were diagnosed as having behavioral insomnia of childhood based on the International Classification of Sleep Disorders (ICSD) criteria [1] were recruited from the Pediatric Sleep Center at Dana Children's Hospital, Tel Aviv Medical Center. Children between 6 and 36 months of age who were diagnosed as having feeding disorders based on Chatoor criteria [7], were recruited from the same institution's Infant Feeding Disorders Clinic. In addition, healthy children between 6 and 36 months of age who attended community well-baby clinics in the metropolitan area of Tel Aviv for routine periodic evaluations and had never sought professional consultation for sleep or feeding problems were recruited and served as controls. Children with chronic medical conditions, congenital abnormalities or developmental delay were excluded from the study. A total of 230 children were recruited. Thirty-one had behavioral insomnia, 29 had feeding disorders, and 170 served as controls. The mothers of all participants were requested to complete three questionnaires before any intervention was applied. The study was approved by the Institutional Review Board, and written informed consent was obtained from all participating mothers.

2.1. Maternal questionnaires

Maternal cognitions about infant sleep were assessed using the maternal cognitions of infant sleep questionnaire (MCISQ) [17]. This questionnaire consists of 20 items. The participants were requested to rate their agreement with each statement on a six point Likert scale from “strongly agree” to “strongly disagree”. The

twenty items are categorized into five subscales: limit setting (items associated with difficulties in setting limits or resisting the infant's demand), anger (negative feelings toward the infant), doubt (doubts about parental competency), feeding (concerns about feeding issues during the night), and safety (concerns about the child's safety during the night). Higher scores represent greater concerns and stronger doubts on all the subscales [17].

Feeding was assessed using the behavioral pediatrics feeding assessment scale (BPFAS), which consists of 35 items [5]. The first 25 items focus on the child's eating behaviors and the remaining 10 items focus on the parent's feelings about or strategies for dealing with the child's eating behaviors. Each item presents a descriptive phrase to which the parent is requested to rate how often the behavior occurs on a five point Likert scale from “never” to “always”. The parent was also asked whether or not the behavior is a problem for them by circling either “yes” or “no” [5]. Higher scores indicated more frequent behavior. In the present study, we analyzed only the 10 items related to maternal cognitions.

Maternal depression was assessed using the Beck Depression Inventory-II (BDI-II) [18]. This inventory is a 21 item, self-report questionnaire that assesses cognitive, behavioral, affective, and somatic symptoms of depression. It was developed to correspond to the criteria for DSM-IV depressive diagnoses. The suggested cutoff scores are as follows: minimal depression = 0–13, mild depression = 14–19, moderate depression = 20–28, and severe depression = 29–63 [18].

2.2. Statistical analysis

Analyses were performed with SPSS (version 15.0; SPSS Inc., Chicago, IL) Comparisons of variables according to group assignment (behavioral insomnia group, feeding disorders group and control group) were performed with independent *t*-tests or analysis of variance (ANOVA) followed by post-hoc comparisons, with *P* values adjusted for unequal variances when appropriate, (Levene's test for equality of variances), or chi square (χ^2) analyses with Fisher's Exact Test (dichotomous outcomes). Comparisons of variables that were not normally distributed were performed with the Wilcoxon Mann Whitney non-parametric test. Correlations between variables were followed by calculations of Spearman correlation coefficients. All the reported *P* values are two-tailed, with statistical significance set at <0.05.

3. Results

Of the 230 children recruited, 31 had behavioral insomnia, 29 had feeding disorders, and 170 served as controls. Forty-seven percent were males, and the mean age of the entire cohort was 16.1 ± 7.6 months. The mean number of children in the family was 1.8 ± 1.0 , and 56% of the study children were firstborns. There were no significant differences in age and gender distribution, number of children in the family and birth order of the study child among the three groups. No differences were found in child's birth weight and current weight between the three groups (Table 1). Similar to our previous observation [13], 25% of mothers of children with behavioral insomnia described their child's feeding as “a problem”, and 18% of mothers of children with feeding disorders similarly considered their child's sleep behavior problematic.

3.1. Maternal cognitions about infant sleep

The results of the MCISQ for the behavioral insomnia, feeding disorders and control groups are summarized in Table 2. The MCISQ total score was significantly increased in the behavioral insomnia group compared with the control group (*P* = 0.01). Moth-

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