

Research Article

The Relationship between Mothers' Attachment Orientations and Their Infants' Sleep Patterns

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Received 1 August 2013; Accepted 16 September 2013

Academic Editor: Annie Vinter

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Objective. In this paper we examine the association between mothers' attachment style and their infants' sleep patterns. We hypothesized that low levels of anxiety and avoidance attachment orientations would enable the mother to use more efficient strategies to put her infant to sleep, and in time the infant will assimilate these strategies and consequently develop suitable and more independent sleep routines. *Participants and Measures.* The 125 mothers who participated in this study completed (a) a measure of attachment orientations (b) and a measure of mother's perception of their infant's sleep patterns. *Results.* The results indicated that the greater the mothers' avoidance attachment orientation is, the longer it takes to put the child to bed at night, the more wakeful the child is at night, and the more the night wakings are. However, for mothers with high anxiety attachment orientation, there is a positive correlation between child's age and the time it takes to put him/her to bed, such that the older the child, the longer it takes. *Conclusions.* The implications of the parent strategies for putting infants to bed on infants' sleep patterns are discussed. Suggestions for future studies examining broader implications of the results are offered.

1. Introduction

Sleep is a normative essential activity. It constitutes separation from familiar people, objects, and activities [1]. Therefore, it might arouse anxiety, feelings of helplessness and frustration. Higley and Dozier [2] review popular parenting literature (e.g., [3]), as well as the research of many pediatricians and psychologists (e.g., [4]) suggesting that parents should teach babies to soothe themselves to sleep by not responding to their cries for attention. These recommendations are based on evidence that parental nighttime interactions (e.g., rocking, feeding, and parental presence) cause and perpetuate sleep problems [5–7].

Higley and Dozier [2] on the other hand, claim that attachment theory suggests that parents should respond quickly and sensitively to infants' signals (e.g., [8]), thus appearing at odds with the former contemporary advice regarding handling sleep issues. They point out that researchers have not addressed this issue of nighttime responsiveness directly, although daytime responsiveness has been studied extensively. They explain that from an evolutionary

perspective, nighttime is associated with a greater likelihood of threatening conditions than daytime [9, 10], thus making the study of the attachment system during nighttime interactions particularly important. Given the emphasis in the popular literature on teaching infants to soothe themselves to sleep, even when this involves crying for progressively longer periods of time [3, 5], Higley and Dozier [2] suggest that this issue is critical.

Goodlin-Jones et al. [11] focused on night waking behaviors and the emergence of self-soothing among infants in their first six months. Younger infants tended to demand parents' intervention in order to fall back asleep, while older infants showed a higher ability to resume sleep after waking without parental intervention. However, at 12 months, 50% of infants still required parent intervention in order to put themselves back to sleep after waking.

Several studies examined the effect of parent strategies for putting infants to bed on infants' sleep [12–14]. One such strategy was "cosleeping." Cosleeping can take several forms: sleeping in the parents' bed or sleeping in a cot or cradle near the parents' bed. Cosleeping is defined in the literature both

as a problem and as a solution to infants' sleep issues [15–17]. A consistent finding in the research is that cosleeping decreases as infants grow older [16–18]. Studies have found a correlation between maternal separation anxiety and a symbiotic sleep pattern: falling asleep and/or mother-child cosleeping. Other studies show that mother-child cosleeping is a problem resulting from infants' sleep disorders [19, 20].

Morrell and Steele [21] investigate the relationship of etiological factors with infant sleeping problems during the first year and at followup during the second year of life. They review a number of studies that have shown parental interactive bedtime behaviors that interfere with the development of infant self-comforting and are associated with sleeping problems. They describe holding [12, 22], requiring the presence of a parent [5], cosleeping [7, 17, 22–25], and giving a feed to settle the child to sleep as associated with sleeping problems.

Morrell and Steele [21] refer to attachment relationships as a factor likely to be associated with infant and childhood sleeping problems, as going to sleep at night involves a process of separating from the caregiver, which, in turn, is likely to activate attachment behavior [26, 27]. They suggest that, specifically, infants who demonstrate insecure ambivalent attachment patterns are those who demonstrate the greatest degree of anxiety, distress, and difficulty regulating emotion in response to separation from caregivers, when compared to either insecure avoidant or securely attached infants [28, 29].

Morrell and Steele [21] also refer to the association that has been demonstrated between childhood sleeping problems and mothers whose own memories of attachment experiences with their parents were insecure as measured by the Adult Attachment Interview [30]. Sadeh and Anders [14] state that separation problems in both parent and infant are the most common relationship issues underlying persistent dyadic difficulty in resolving sleep problems in clinical settings. Morrell and Steele [21] point out that only a single other study to date has assessed the relationship between attachment security and infant sleeping problems directly. The authors describe Scher's study [31]. Scher [32] examined the correlation between infant sleep and maternal separation anxiety. Research findings indicate a strong correlation between maternal separation anxiety and nocturnal waking among their children. The higher the mother's anxiety attachment orientation, the more often infants woke up at night. Moreover, mothers with higher separation anxiety were found to be more involved in soothing and attending to infants at night.

1.1. Sleeping and Falling Asleep Patterns and Attachment Orientations. Attachment behavior is aimed at providing infants with security and protection. Ainsworth et al. [33] examined interpersonal differences in infant responses to separation from their mother and upon reunion. They categorized infants in three groups: secure infants, avoidant infants, and anxious-ambivalent infants. The avoidant and anxious-ambivalent attachment style represent two popular ways of coping with the lack of a secure base [34]. While avoidant infants cope with the experience of insecure attachment

through "flight," anxious-ambivalent infants cope with the same experience through "fight," in an attempt to gain the security they lack in their relationship with caregivers.

Since sleep is a state of separation, the attachment system of mothers and infants may be assumed to be expressed more forcefully in this situation, affecting mothers' ability to grasp, interpret, and regulate infants' distress. For example, Benoit et al. [30] found that mothers of infants with sleep disorders are characterized by anxious attachment. Morrell and Steele [21] examined causes of sleep disorders among infants in their first and second year as well and found that mothers' cognitive difficulties (concerning setting limits), infants' temperament, mothers' anxiety and depression, and mothers' anxious attachment affect the persistence of infants' sleep difficulties.

Moreover, Mindell et al. [35] present a theoretical model, the transactional model, to explain the etiology of infants' sleep patterns. According to this model, parents' beliefs, expectations, feelings, and behavior, affecting infants' sleep and manifested in parent-infant interactions, are influenced by the familial and cultural-social context (e.g., social norms concerning cosleeping) and the environment, as well as by their personality, in addition to infant characteristics: age, temperament, and developmental features.

Thus, it seems that interpersonal differences in infants' sleep patterns may be interpreted as a function of maternal attachment patterns. Namely, methods used by mothers to soothe their infants will affect how infants learn to regulate their own distress. Accordingly, if the mother has a secure attachment style (low levels of anxiety and avoidance attachment orientations), she will use more efficient strategies to put her infant to sleep, and in time, through a process of internalization, the infant will assimilate and internalize these strategies and consequently develop suitable and more independent sleep routines.

The purpose of this study was to investigate the association between Mothers' attachment orientations and their infants' sleep patterns. We hypothesized that low levels of anxiety and avoidance attachment orientations would enable the mother to use more efficient strategies to put her infant to sleep, and in that time the infant will assimilate these strategies and consequently develop suitable and more independent sleep routines. Unlike prior studies, this study used a measure of mother's attachment style through Experience in Close Relationships [36] questionnaire as opposed to babies' attachment style which was assessed with the strange situation (see [31]). Similarly, Scher and Asher [37] found that attachment security, assessed by the Attachment Q-Sort [38], was not associated with parent-reported sleep problems, bedtime settling strategies, or actigraphic measures of sleep efficiency and night waking in 12 month old. Thus, these studies failed to find support for the link between attachment and infant sleep. With the exception of Scher [31] and Scher and Asher [37], these studies relied on parent report rather than observational measures of sleep problems.

Higley and Dozier [2] claim that given that parents of children are differing in attachment quality may differentially report child problems, it is critical that observational studies can be conducted. In the present study, on the contrary we

claim that given that mothers differing in attachment quality may differentially report child problems, which should be a critical factor in the essence of the child's actual sleeping problems.

As was described by Morrell and Steele [21], an association has been demonstrated between childhood sleeping difficulties and mothers whose own memories of attachment experiences with their parents were insecure as measured by the Adult Attachment Interview [30]. Sadeh and Anders [14] state that separation problems in both parent and infant are the most common relationship issues underlying persistent dyadic difficulty in resolving sleep problems in clinical settings. Morrell and Steele [21] point that only a single study has assessed the relationship between attachment security and infant sleeping problems directly.

The infant's capacity to sooth himself and develop an independent sleep routines is a process that takes months even more than a year. In order to understand the normative process along with the problematic patterns, the present study chooses to focus on a wide age range of infants. The present study focuses on the mothers based on the assumption that the mothers are the "important other" for her infant and that her attachment orientations are more or less stable behavior's patterns.

In the present study the methodology provides the opportunity to understand how the subjective point of view of the mother, given her own attachment orientation and given her subjective point of view of her child's relative sleeping problems, may contribute to sleeping patterns of her child.

Finally, the present study aims to examine how in time the infants internalize soothing strategies and thus develop suitable and more independent sleep routines or unsuitable and problematic sleeping patterns.

2. Method

2.1. Participants. The participants are 125 mothers and their infants. Mothers' mean age was 30.50 years ($SD = 4.85$), and children's mean age was 22.98 months ($SD = 13.74$). Of the children, 50.8% were male ($n = 62$) and 49.2% female ($n = 60$). Of the mothers, 93.8% ($n = 105$) were Israeli born, and the rest had been born elsewhere; 92.8% were married ($n = 116$), and the rest were divorced ($n = 4$), single ($n = 3$), or widowed ($n = 2$). Of the children, 54.8% were firstborn ($n = 68$), 25.8% second born ($n = 32$), and 19.4% third or more ($n = 24$). On average, mothers reported relative little cosleeping tendencies ($M = 1.84$, $SD = 0.80$, range 1–4) and few sleep problems ($n = 1.43$, $SD = 0.56$, range 1–4). Accordingly, they did not tend to perceive their child's sleep as problematic ($M = 1.59$, $SD = 0.98$, range 1–5). On average, children were reported to sleep some nine hours a night ($M = 9.37$, $SD = 1.79$, range 2–13) and an hour and a half during the day ($M = 1.63$, $SD = 1.12$, range 0–5 hours). The mean time it took to put them to sleep at night was about 30 minutes ($M = 0.61$, $SD = 0.55$, range 0–2.5 hours). Children were reported to wake at night one to two times on average ($M = 1.70$, $SD = 1.47$, range 1–7 times), remaining awake for a mean of 20 minutes a night ($M = 20.72$, $SD = 30.57$,

range 1–165 minutes). About two-thirds of mothers (64.8%, $n = 81$) reported that they do not perceive their child's sleep as a problem at all, and one-fifth (20.0%, $n = 25$) reported that they perceive it as a slight problem. About 15% of mothers perceived their child's sleep as more of a problem: moderate (8.8%, $n = 11$), hard (4.0%, $n = 5$), or severe (2.4%, $n = 3$).

2.2. Research Tools

Experience in Close Relationships [36]. The questionnaire consists of 36 items, of which half relate to anxiety attachment orientation ("I am concerned of being abandoned") and half to avoidance attachment orientation ("I prefer not to show other people how I feel deep down"). Each question is scored on a 7-item scale, with participants ranking to what degree items describe their feelings in close interpersonal relations (1: completely untrue, 7: very true). It was developed based on factor analysis performed by Brennan et al. [36] of most extant attachment questionnaires, and it is considered valid and reliable. Mikulincer and Florian [39] examined the correlation between this questionnaire and another exploring attachment patterns [40] and a high correlation was found. The questionnaire was translated into Hebrew by three bilingual psychologists and was found to be valid and reliable [39]. The current study found good internal consistency for the questionnaire's scales: anxiety: $\alpha = .89$ and avoidance: $\alpha = .86$.

Infants' Sleep Patterns [41]. It is a questionnaire about the infant's sleep features and to what degree do mothers perceive infants' sleep as problematic on a scale of 1 (not a problem) to 5 (very severe problem). High test-retest correlations were demonstrated for the questionnaire (0.82). The questionnaire was found to be correlated significantly with sleep measures derived from sleep diaries [41]. Examination of mothers' responses to questionnaire items indicated high correlations between 3 questions concerning mother-infant cosleeping tendencies ($r = .75$ to $r = .86$, $P < .001$), and therefore the more general question was selected as representative (to what degree does the infant regularly spend the night in his/her parents' bed). Factor analysis (principal component) with varimax rotation (eigenvalue > 1), conducted with seven items (sleep arrangements, how does the infant fall asleep, spending time in parents' bed, objection to being put to bed, how long does infant remain awake at a time, falling asleep difficulties, and getting the infant back to sleep at night), generated two factors. The first factor (eigenvalue = 3.06, 43.73% of explained variance) consists of four items (loading .69 to .83) on cosleeping tendencies (sleeping arrangements, how is the infant put to bed, spending time in parents' bed, and getting the infant back to sleep at night) and was defined as "cosleeping" ($\alpha = .79$). The second factor (eigenvalue = 1.28, 18.30% of explained variance) consists of three items (loading .56 to .86) on sleeping and falling asleep difficulties (objection to being put to bed, how long does infant remain awake at a time, and falling asleep difficulties) and was defined as "sleeping and falling asleep difficulties" ($\alpha = .67$). Scores of the two variables were constructed from the means of items from which they were composed,

TABLE 1: Correlations between mother's perception of child's sleep quality and reported duration of sleep and wakefulness ($n = 125$).

	Nocturnal sleep duration	Daytime sleep duration	Time required to put to bed at night	Frequency of nocturnal wakings	Time awake at night
Cosleeping	-.16	.21*	.42***	.43***	.40***
Sleeping and falling asleep difficulties	-.29**	.20*	.56***	.45***	.69***
Perception of sleep as a problem	-.27**	.14	.64***	.63***	.53***

* $P < .05$; ** $P < .01$; *** $P < .001$.

TABLE 2: Correlations between infant's age and mother's perception of sleep quality and reported hours of sleep and wakefulness ($n = 125$).

Cosleeping	Sleeping and falling asleep difficulties	Perception of sleep as a problem	Nocturnal sleep duration	Daytime sleep duration	Time required to put to bed at night	Frequency of nocturnal wakings	Time awake at night
-.29**	-.21*	-.18*	.11	-.58***	-.07	-.24**	-.21*

* $P < .05$; ** $P < .01$; *** $P < .001$.

on a scale of 1–4, such that a higher score indicates greater cosleeping tendencies and more sleep problems. In addition, the general question on the degree to which mothers perceive their infants' sleep as problematic was also used, as well as questions on nocturnal/daytime sleep duration, how long it takes to put the child to sleep at night, and nighttime wakefulness.

Demographic Questionnaire. This questionnaire included details on age of mother and child, child's sex, mother's ethnic origins, marital status, schooling, religiosity, and birth order.

2.3. Procedure. Participants were sampled at random and personally approached by the researchers, who described the study and asked them to take part in it. Mothers volunteered to participate in the study based on their interest, with no compensation. The sample is random and does not represent the entire population. Participants completed the questionnaire at their leisure, beginning with the demographic questionnaire, followed by the attachment questionnaires, and finally the sleep quality questionnaire.

3. Results

3.1. Sleep Quality. The two factors, perceived cosleeping tendencies and sleeping and falling asleep difficulties, were found to show a positive correlation ($r = .42$, $P < .001$), such that the more the cosleeping tendencies, the more the perceived sleeping and falling asleep difficulties. Significant correlations were found between mothers' perception of their child's sleep quality and reported duration of sleep and wakefulness, as portrayed in Table 1. The longer the child's nighttime sleep is, the fewer the sleep problems are reported, and the less sleep was perceived as a problem. Accordingly, the longer it took to put the infant to bed at night and the more hours of nighttime wakefulness and frequency of night wakings, the higher reported cosleeping tendencies and sleeping and falling asleep difficulties, and the more sleep was

perceived as a problem. A similar finding was indicated for daytime sleep duration and cosleeping and sleep problems, although correlations were weak. Significantly, no correlation was found between nocturnal sleep duration and tendency of cosleeping or between daytime sleep duration and perception of sleep as a problem.

At the next stage, correlations between infants' age and their sleep quality and sleep duration were examined (Table 2). Findings show that the older the child is, the less the cosleeping tendencies were apparent, the less sleeping difficulties appeared and also the less falling asleep difficulties were reported. In addition, as the child grows older mothers' perception of sleeping as problematic decreases. As expected, the older the child, the shorter the daytime sleep duration, the less frequent the night wakings, and the less the nighttime wakefulness. No correlation was found between the child's age and nocturnal sleep duration or time it takes to put the child to bed at night.

Perceived sleep quality and sleep duration showed no difference by child's sex ($t(120) = -180$ to $t(120) = 0.58$), mother's schooling (academic/nonacademic: $t(123) = -0.46$ to $t(123) = 1.62$), or mother's religiosity (secular/nonsecular: $t(122) = -1.00$ to $t(122) = 1.69$).

3.2. Attachment Measures. The mean for mothers' anxiety attachment dimension was $M = 49.97$ ($SD = 19.21$, range 18–126) and for avoidance attachment orientation $M = 57.88$ ($SD = 17.26$, range 18–126). The correlation between them was $r = .25$ ($P < .01$). According to the second research hypothesis, the correlation between mothers' attachment orientations and perceived sleep quality and sleep duration of their child was examined. The correlation was analyzed with multiple regressions. In light of the above findings, the correlation was analyzed while controlling for the child's age, which was entered in the first step (Table 3), in order to generate perceived sleep quality. The regressions show that child's age predicts cosleeping tendencies, such that the younger the child, the greater the cosleeping tendencies,

TABLE 3: Multiple regression of perceived sleep quality by infant's age and mother's attachment measures ($n = 123$).

Dependent variable	Cosleeping β	Sleeping and falling asleep difficulties β	Perception of sleep as a problem β
Step 1			
Child's age	-.29**	-.20*	-.17
R^2	.08**	.04*	.03
Step 2			
Child's age	-.28**	-0.15	-.15
Anxiety orientation	.02	.12	.07
Avoidance orientation	.09	.40***	.24**
R^2	.09**	.24***	.10**
$F(3, 119)$	3.96**	12.27***	4.52**

* $P < .05$; ** $P < .01$; *** $P < .001$.

unrelated to mothers' attachment measures. In contrast, sleeping and falling asleep difficulties as well as perception of sleep as a problem are explained by avoidance attachment orientation, when controlling for the child's age, such that the greater the mothers' avoidance attachment orientation, the more children have sleeping difficulties and the more children have falling asleep difficulties. In addition, these avoidant mothers perceive their children's sleep as more of a problem.

Table 4 portrays multiple regressions of sleep duration by anxiety and avoidance attachment orientation, controlling for the child's age. Table findings show that nocturnal sleep duration is not explained by the child's age or the mother's attachment orientation, while daytime sleep duration is only explained by the child's age. In contrast, the time it takes to put the child to bed at night, the frequency of night wakings, and the duration of nighttime wakefulness were explained by the mother's avoidance attachment orientation, controlling for the child's age. The greater the mothers' avoidance orientation is, the longer it takes to put the child to bed at night, the more wakeful the child is at night, and the more the night wakings are.

Thus, child's age explains cosleeping tendencies and daytime sleep duration, and mothers' attachment orientation has no significant effect. Avoidance attachment orientation explains sleeping and falling asleep difficulties, perception of sleep as a problem, and the time it takes to put the child to bed at night, with no significant effect of the child's age. Both child's age and the mother's avoidance attachment orientation explain the frequency of night wakings and the duration of nighttime wakefulness.

Attachment orientations were found to mediate the correlation between child's age and mother's perception of sleep problems ($\beta = -0.20$, $P < .05$). The slope analysis shows that, for mothers with low avoidance attachment orientation, child's age is unrelated to sleep problems ($\beta = 0.03$, N.S.), but for mothers with high avoidance attachment orientation, there is a negative correlation between child's age and sleep problems ($\beta = -0.18$, $P < .01$), such that the older the child the, less the sleep problems as perceived by mothers.

In addition, attachment orientation was found to mediate the correlation between child's age and time it takes to put the

child to bed ($\beta = 0.29$, $P < .01$). The slope analysis shows that, for mothers with low anxiety attachment orientation, there is a negative correlation between the child's age and the time it takes to put the child to bed ($\beta = -8.83$, $P < .05$), such that the older the child the, less time it takes to put him/her to bed. However, for mothers with high anxiety attachment orientation, there is a positive correlation between child's age and the time it takes to put him/her to bed ($\beta = 8.53$, $P < .05$), such that the older the child, the longer it takes.

4. Conclusions

The purpose of the current study was to examine the correlation between mothers' attachment orientations and their infants' sleep patterns. The research hypothesis was based on the assumption that the way the mothers put their infants to sleep and how they sooth their infants when they wake up will be correlated by mothers' attachment orientations. These coping strategies are assimilated by infants as self-regulation strategies and then manifest themselves in infants' ability to fall asleep and sooth himself through the night. In other words, the hypothesis was that as infants grow older, common sleep problems will gradually diminish among those with mothers who tend to secure attachment orientation as infants will internalize efficient strategies. In contrast, the sleep problems of infants of mothers who tend to insecure attachment orientations will not diminish and will even increase, due to the assimilation of inefficient strategies. Finally, mothers' subjective perception of their infants' sleep was examined; based on the assumption that aside from objective sleep problems, differences would be found in mothers' subjective perception of infants' sleep problems, as a result of mothers' attachment orientations.

The definition of "sleep problems among infants" usually refers to infants who wake at least 3 times a night several times a week, to parents' knowledge [42, 43]. Notably, brief nocturnal waking is a natural occurrence among most infants, such that the significant difference between infants who "sleep through the night" and infants who wake up at night is not in their waking but, having woken, in infants' ability to put themselves back to sleep without parents' help [12, 44].

TABLE 4: Multiple regressions of hours of sleep by child's age and mother's attachment measures ($n = 123$).

Dependent variable	Sleep at night β	Sleep in the daytime β	Time required to put to bed at night β	Nocturnal wakings β	Nighttime wakefulness β
Step 1					
Child's age	.10	-.58***	.06	-.24**	-.20*
R^2	.01	.33***	.01	.06**	.04*
Step 2					
Child's age	.09	-.58***	-.04	-.20*	-.17*
Anxiety orientation	.05	-.07	-.01	.12	.06
Avoidance orientation	-.15	.01	.30***	.29***	.36***
R^2	.03	.34***	.09**	.17***	.19***
$F(3, 119)$	1.33	19.95***	4.04**	8.03***	8.87***

* $P < .05$; ** $P < .01$; *** $P < .001$.

A major claim of the current study was that infants' ability to fall back asleep depends on the development of self-soothing skills resulting, among other things, from the parent-child interaction, where mothers' style of attachment will have an impact on the mother-infant interaction in sleep situations as well (mothers' attachment style will influence infants' choice of strategies for soothing themselves and putting themselves back to sleep).

In support of the research hypotheses, findings showed that the older the child is, the less the strategy of cosleeping was utilized, the less the sleeping and falling asleep difficulties are, and the less the mothers perceived infants' sleep as problematic. Following a normative course, the older the child, the shorter his/her daytime sleep, the less often their night wakings, and the less they are awake at night.

As hypothesized, a correlation was found between mothers' attachment style and the sleeping and falling asleep difficulties, as well as with perceptions of "the infant's goes to sleep" as a problem. Specifically, these measures were found to be explained by avoidance attachment orientation, when controlling for the child's age. The more the mother's avoidance attachment orientation, the more the sleeping and falling asleep difficulties, and the more the mothers perceived the "infant's goes to sleep" as a problem. In addition and nonetheless, the time component was found to have a mediating effect on sleep problems of the children of mothers' with avoidance attachment orientation. The older the child, the less his/her sleep problems as perceived by mothers. A possible explanation of this finding is that in time infants may learn that their mother is not available and accessible, and therefore it is "futile" to signal her for help. They may learn to diminish their use of the attachment system, as avoidant people do in times of distress. In other words, mothers may interpret infants reduced use of the attachment system as a decrease in sleep problems, when this in fact only reflects infants' recognition that their mother is not available, with a subsequent decrease in signals sent to her.

In regard to cosleeping, the study found that infants' age predicts cosleeping tendencies, such that the younger the child, the more the cosleeping, unrelated to mothers'

attachment measures. The literature presents the cultural social context of cosleeping. In an extensive study consisting of parents of infants aged 0–3 from different cultures, most children from Asiatic countries were found to sleep with their parents in the same room until the age of 3. In contrast, in western countries some 50% of children sleep with their parents in the same room in their first few months, but this percentage drops dramatically during the first year [35]. These findings indicate large cultural differences in the sleep environment of infants in different cultures. The research literature associates psychological benefits with cosleeping, side by side with various physiological disadvantages or risks [35, 45, 46]. Therefore, use of this strategy may not be a sufficient cause to classify it as positive or negative rather it is necessary to examine the reasons that motivate mothers to use it. Thus, further research should examine parental reasons and perceptions of cosleeping, in order to understand whether it constitutes an efficient solution or an undesirable necessity for parents.

In conclusion, following the attachment theory infants' sleep features seems to indicate the nature of mother-infant interactions and later infants' ability to internalize maternal functions in order to sooth and put themselves to sleep.

The current study was an associative correlational study. It is important to note some limitations of this study. One limitation is that the demographics of the infants that ended up in the study were predominantly "good sleepers." Apparently, this group represents the majority of infants' population as most longitudinal studies show that infant sleeping problems tend to spontaneously decline with age, leaving a significant minority with persistent problems. Rates quoted range from 21% at one year to 10% at 4.5 years (Jenkins et al. [47]). The infants chosen are generally good sleepers that represent the general normal population. Thus the implications of such a study could be applied to the normal population of mothers and infants.

A second limitation is the infants' age chosen in this study. The purpose of choosing a wide age range of children was to display the way sleeping patterns are internalized within time. Future studies are recommended in order to expand

the scope of this study and investigate more specific questions concerning the correlations found. For example, the question whether “bad sleepers” gathered, for example, in clinical populations would show a different pattern of results. In future studies it would be important to examine longitudinal comparison of infants’ sleeping patterns from birth to three years. This would be a more thorough way to look at changes of sleeping habits within participants as they grow up.

Additional measures of mothers’ anxiety and mood level should be considered in future studies in order to help understand how the emotional state of the mother at the time of putting to bed affects the sleep behaviors.

Finally, implications of this study could be useful in terms of mothers involvement in putting to sleep. This study also suggests that it is recommended for therapists and professionals to help mothers be aware of their “putting to sleep” strategies and the way they teach their newborn sleeping habits. This could be useful for mothers and other family members even in a time when new computer and phone applications are developed in order to help parents interpret infant crying and to respond adequately and rapidly to his/her needs.

Disclosure

The authors have no financial relationships relevant to this paper to disclose.

Conflict of Interests

The authors have no conflict of interests to disclose.

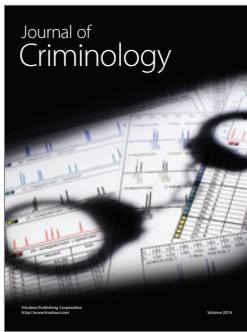
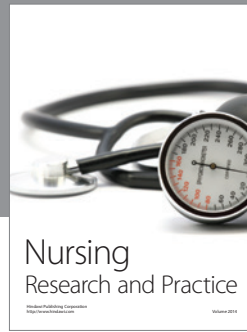
Acknowledgments

This study was carried out at Ariel University, Israel. It was supported by the Authority for Research and Development at Ariel University, Israel.

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