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Children's sleep regulation is linked to mothers' sleep-related childhood experiences

Ora Aviezer[a,b,*], Anat Scher[c]

[a] Oranim Academic College of Education, Tivon 36006, Israel
[b] Center for the Study of Child Development, Rabin Bldg. # 6035, University of Haifa, Haifa 31905, Israel
[c] Department of Counseling and Human Development, University of Haifa, Haifa 31905, Israel

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ABSTRACT

The present research explored how mothers' own childhood experiences are linked to their perceptions of their children's sleep regulation. It focused on collective sleeping; a practice used in the past in the Israeli kibbutz, and used a quasi-experimental research design to examine whether mothers who were raised in collective sleeping arrangements differed from mothers who were raised in home sleeping. Two typically developing cohorts: infants ($n = 68$; ages 9–15 months; $M = 12.2$, $SD = 2.2$) and preschool children ($n = 113$; ages 48–55 months; $M = 51.5$, $SD = 1.85$) participated in this investigation. Sleep regulation and temperament were reported for infants and children, whereas for mothers data were collected on separation anxiety and appraisal of the ecology in which they were raised. Collectively raised mothers evaluated their upbringing significantly more negatively than home-raised mothers, expressed higher separation anxiety with regard to an alternative caregiver, but were not different in their views of their child's sleep difficulties. For infants, it was maternal separation anxiety that contributed uniquely to the explained variance in maternal view of sleep regulation difficulties. For preschool children, it was maternal evaluation of own childhood ecology and child's temperament that contributed uniquely to the explained variance in maternal view of sleep regulation difficulties. These findings suggest that mothers' representations of their sleep-related early experiences, rather than their childhood ecology in and of itself, influenced their perceptions about their child's sleep, which, in turn, affect child's sleep patterns. Implications to caregiving are discussed.

1. Introduction

Sleep is fundamentally a biological process, yet its regulation in infants and children takes place within the context of the family (Dahl & El-Sheikh, 2007) and it is among the most prevalent concerns of young children's parents (Dahl, 2011). Hence, in addition to constitutional child variables, such as temperament (e.g., Scher, Tirosh, & Lavie, 1998; Spruyt et al., 2008), parental variables have been found to contribute to the development of sleep habits during infancy and early childhood (e.g., Benoit, Zeanah, Boucher, & Minde, 1992; El-Sheikh & Kelly, 2011; Higley & Dozier, 2009; Milan, Snow, & Belay, 2007; Sadeh, Flint-Offir, Tirosh, & Tikotzky, 2007; Sadeh, Lavie, & Scher, 1994).

The interrelations between parenting and child's sleep have been conceptualized within a dynamic bi-directional approach (e.g., Sadeh & Anders, 1993), which emphasizes the significance of parental bedtime practices for children's sleep regulation (Anders, Goodlin-Jones, & Sadeh, 2000; Sadeh, Tikotzky, & Scher, 2010). Within this framework, multiple factors shape parents' sleep-related practices and are influenced by the ecological context of parenting, such as the larger culture (Jenni & O'Connor, 2005; Milan et al., 2007) and parents' own sleep-related personal history (Daws, 1989). Yet, research on the relations between parents' own sleep-related childhood experiences and their perceptions and practices with regard to their children's sleep is scarce. Thus, this study aims to explore the links between mothers' own childhood experiences and their perceptions of their children's sleep regulation. For this purpose, we studied mothers whose early sleep-related experiences were unique, in that they were raised in collective sleep which was practiced in the Israeli kibbutz.

1.1. Kibbutz childcare and collective sleeping arrangement

Collective sleeping for children, away from their parents, was the most distinctive characteristic of kibbutz collective child rearing practices (Aviezer, Sagi, & van IJzendoorn, 2002). Kibbutz infants

* Corresponding author at: Center for the Study of Child Development, Rabin Bldg. #6035, University of Haifa, Haifa 31905, Israel. Tel.: +972 4 8249316, fax: +972 4 8253896.
E-mail addresses: oaviezer@psy.haifa.ac.il (O. Aviezer), anats@construct.haifa.ac.il (A. Scher).

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and children lived in children's homes under the care of non-parental care-givers, and spent daily family time in the parental residence during afternoons and evenings as well as on weekends. Children returned to the children's house for the night, and were put to bed by their parents. Two watchwomen, on duty based on a weekly rotation, were responsible for all kibbutz children under the age of 12, and monitored the children's houses with an intercom system and occasional rounds.

Collective sleeping arrangement was abandoned in favor of home sleeping in the early nineties of the last century. Moreover, the discontinuation of the traditional collective sleeping arrangement along with additional socio-economic challenges has lead kibbutzim to open their childcare services for non-kibbutz children from nearby communities. Parents may visit their children during the day, as kibbutz is a small and rather informal community, however as all mothers work, often outside the kibbutz, such visits are sporadic. Thus, nowadays kibbutz early child care resembles non-kibbutz services, as kibbutz children's sleeping arrangement is no different from that of urban children and childcare services are not exclusive for kibbutz families.

Collective sleeping was an ideologically based child rearing practice, which had imposed nighttime separation on parents and children from infancy onward (for a review and discussion see Aviezer, van IJzendoorn, Sagi, & Schuengel, 1994; Oppenheim, 1998). Such nightly separations from parents are likely to impose on infants and young children a sense of abandonment and low trust in parental availability. The unsettling nature of these night experiences for children was validated by research that found shorter uninterrupted sleep periods for collectively sleeping kibbutz children compared to home-sleeping kibbutz children (Ophir-Cohen, Epstein, Tzischinsky, Tirosh, & Lavie, 1993). Yet, many kibbutz parents recognized their children's needs, and reorganized their caregiving to provide them support by frequent nightly visits to the children's house, sleeping there, or by taking children to sleep in their own private dwelling (Oppenheim, 1998).

Research on kibbutz upbringing indicated that the development of kibbutz and non-kibbutz children was comparable, and that kibbutz-raised individuals were emotionally healthy (see Aviezer et al., 1994 for a review). Nonetheless, examinations of attachment relationships revealed higher rates of insecure attachment among collectively sleeping infants, of which ambivalence was the predominant classification (Sagi et al., 1985; Sagi, van IJzendoorn, Aviezer, Donnell, & Mayseless, 1994), as well as lower rates of intergenerational transmission of attachment (Sagi et al., 1997).

1.2. Children's sleep, early relationships, and parenting cognitions

The findings with regard to the quality of attachment relations among collectively sleeping kibbutz infants are intriguing when we consider Anders' views (1994) about parenting and children's sleep, and the influence of nighttime experiences in early life on the development of the attachment system. Indeed, it was argued (Aviezer, Sagi, Joels, & Ziv, 1999) that the night experiences of collectively sleeping infants accounted for the higher rates of insecure ambivalent attachment to mothers that were found in the collectively sleeping group. Yet, attachment security is not the only relationship construct that influences infants' and children's sleep regulation. Scher (2008) found that higher levels of maternal separation anxiety were linked to 10-month-old infant sleep fragmentation, and to intense maternal involvement in their settling at bedtime. Indeed, sleep-related separation anxiety is particularly relevant to the dyadic relationships when attachments to significant others are established, at the end of the first year (Scher & Asher, 2004). Separation anxiety continues to be a distressing experience throughout childhood (Eisen & Schaefer, 2005), and is relevant for sleep-related parent-child relations because separations may risk the provision of care and protection (George & Solomon, 2008).

Furthermore, parents' caregiving behavior is guided by their representation of caregiving which originates in their own attachment experiences (George & Solomon, 2008). Indeed, maternal representations of their own close relationships, which subsequently shape parenting constructs and behavior, were found to discriminate between mothers of toddlers with and without sleep problems (Benoit et al., 1992). However, mothers' attachment was not associated to sleep problems in a sample of non-referred infants (Scher & Dror, 2003). Thus, findings pertinent to mothers' attachment and child's sleep are inconsistent.

1.3. Parents' sleep-related beliefs and children's sleep

Sleep and parenting research has also focused on parents' beliefs and cognitions about infants' sleep. Morrell and Steele (2003) found that mothers' cognitions about limit setting contributed the largest portion to the explained variance in infancy sleep problems, whereas maternal bedtime practices contributed most to stability of early sleep problems. In addition, Sadeh et al. (2007) found that parents who tended to interpret every infant's signal as a sign of distress were also likely to have difficulty with setting limits, and their infants struggled with developing self-soothing strategies. These findings support the need to assess parental cognition about children's sleep, because they underlie parental sleep-related behavior and interactions, which, in turn, influence children's sleep regulation (Sadeh et al., 2010).

Although parental cognitions, in general, have been recognized as influential on parent-child interaction and on children's development (Bugental & Johnston, 2000), the formation of parents' expectations and attributions with regard to children's sleep, and their origins have not been researched extensively. A recent study (Tikotzky, Sharabany, Hirsch, & Sadeh, 2010) examined children's sleep, and parents' sleep-related cognitions in a typically developing sample of 141 infants and toddlers, whose parents were either raised in kibbutz collective sleeping or at home in the city. They found that compared to home-raised parents, collectively raised parents were more concerned with their infants' distress upon waking up, and less concerned with limit setting. Furthermore, collectively raised parents practiced significantly more co-sleeping and reported more night waking for their infants.

Previous studies failed to find significant differences between kibbutz mothers who raised their children in collective sleep, and mothers who raised their children at home in either attachment states of mind (Sagi et al., 1997), attachment styles (Sharabany, Mayseless, Edri, & Lulav, 2001), or separation anxiety (Sagi et al., 1994). At the same time, explicitly more negative evaluations of collective sleep were expressed by kibbutz mothers with regard to their children's care and their own childhood experiences (Sharabany et al., 2001). These findings suggest that the kibbutz with collective sleep did not attract mothers with implicitly formed unique representations. Rather, mothers' recognitions of the difficulties inherent to the practice of collective sleeping suggest that their cognitions were formed explicitly, based on data driven awareness and reflection (Bugental & Johnston, 2000). Regardless of their origin, cognitions are essential for understanding interactions between parents and children.

The present investigation addressed variations in mothers' perception of children's sleep, while taking into account: The ecological context in which mothers themselves were raised, child's age and temperament, maternal separation anxiety, as well as mothers' explicit evaluations of own upbringing. Similar to Tikotzky et al. (2010), the present research studied the role played by mothers' upbringing in the formation of their perceptions of their children's sleep. However, by targeting two age groups: infants and preschool

Table 1
Summary of sample background characteristics, distribution of sleep variables and control variables according to age group.

Sample characteristics	Infants		Preschool	
	M (*SD*) range	% (*n*[a])	*M* (*SD*) range	% (*n*[a])
Mother's age	32 (4.8) 25–46		36 (4.0) 29–50	
Father's age	35 (5.3) 25–47		37 (4.2) 29–57	
Mother's marital status				
Married to child's father	–	93 (63)	–	94 (102)
Not married	–	07 (05)	–	06 (007)
Remarried	–	–	–	04 (004)
Children's birth order	2.45 (1.4) 1–8		1.55 (0.9) 1–5	
Oldest		32 (22)		47 (54)
In between		–		20 (22)
Youngest		68 (46)		33 (37)
Mother's education				
High school		20 (14)		06 (007)
Post high school		80 (54)		94 (106)
Mother's country of birth				
Israel		84 (57)		94 (106)
Other		16 (11)		06 (007)
Mother's childhood ecology**				
Collective sleeping		38 (26)		64 (72)
Home sleeping		62 (42)		36 (41)
Children's sleep variables				
Bed-time hour	8:00 (40 min) 7:00–11:00		8:00 (30 min) 7:30–10.00	
By 8:30		83 (55)		25 (28)
Between 8:30 and 9:30		15 (10)		66 (72)
Past 9:30		02 (01)		09 (10)
Sleep latency (min)**	18 (19) 00–120		35.5 (21) 00–120	
Within 30 min		71 (47)		29 (32)
Between 30 and 45 min		26 (17)		51 (56)
One hour and longer		03 (02)		19 (21)
# wakes per night**	1.8 (1.4) 0–5		0.7 (0.8) 0–5	
Never		10 (07)		44 (49)
1–2 times		63 (42)		53 (59)
3 times or more		27 (18)		03 (03)
#wakes per week**	5.3 (2.5) 0–7		2.0 (3.0) 0–7	
Never		10 (07)		41 (45)
1–2 nights		07 (05)		32 (36)
3–6 nights		24 (16)		16 (18)
Every night		59 (40)		11 (12)
Co-sleeping at night's end	1.5 (2.6) 0–7		1.3 (2.2) 0–7	
Less than once a week		67 (44)		59 (64)
1–2 times a week		11 (07)		25 (27)
3–6 times a week		07 (05)		08 (09)
Every night		15 (10)		08 (09)
ISQ score**	13.0 (8.3) 0–38		8.8 (6.4) 0–30	
Girls	11.0 (6.4)		8.6 (6.5)	
Boys	10.9 (6.1)		9.1 (6.4)	
Sleep problem – mother				
Girls[b]		68 (21)		35 (20)
Boys[b]		32 (10)		29 (16)
Sleep problem – Richman				
Girls[b]		62 (18)		27 (15)
Boys[b]		38 (11)		16 (09)

** $p < .001$.
[a] Variations in *n* reflect occasional missing data.
[b] % is computed separately for each gender.

children, the developmental scope of this investigation is further expanded.

Drawing on the Israeli Kibbutz context and using a quasi-experimental design, the present research compares between mothers who either experienced trans-generational continuity in sleeping arrangements (mother as a child slept at home and her child sleeps at home), or trans-generational discontinuity (mother slept in a communal setting and her child sleeps at home). On the neurobehavioral level, sleep requires reduced vigilance, which can be achieved only within a safe environment (Dahl & El-Sheikh, 2007). Thus, it is argued that the imposed physical distance between mothers and children during the night, which was inherent to kibbutz collective sleep, complicated the establishment of a safe sleep environment for children. It is conceivable, therefore, that being raised in such ecology will affect mothers' caregiving system (George & Solomon, 2008), and be manifested in intensified emotional states around bedtime separations from children.

Taken together, the objective of the present research was to examine mothers' cognitions and relational constructs with regard to their children's sleep in the context of the mothers' own past upbringing (collective sleeping vs. home sleeping). Three hypotheses were tested. First, it was hypothesized that collectively raised kibbutz mothers will report more sleep problems for their children and more separation anxiety compared to mothers who were raised in home sleeping. Second, in line with Sharabany et al. (2001), it was predicted that mothers raised in collective-sleep will evaluate their experience more negatively than the home-sleep group. Finally, it was hypothesized that mothers' negative evaluations of

their own upbringing ecology will be associated with (a) high levels of maternal separation anxiety and (b) reports of more sleep problems among their children. To obtain a broad developmental perspective, we examined these hypotheses in both infants and preschool children, two age groups that typically stir sleep-related concerns among parents.

2. Method

2.1. Participants

This research was conducted with two cohorts as described below. Both groups of children were enrolled in kibbutz childcare: infants' houses and preschools. Kibbutz membership was not a criterion for participant selection and for some participating children home was outside the kibbutz. Table 1 presents background characteristics for both cohorts.

2.1.1. Infants' cohort

Sixty-eight mothers and their healthy infants (31 boys), whose age was 9–15 months ($M = 12.2$, $SD = 2.2$), participated in the study. Of the 68 mothers, 33 (49%) were raised in a kibbutz: 26 mothers were raised in kibbutz with collective sleep, whereas seven mothers were raised in kibbutz with home sleep and were considered as part of the home-raised group.

2.1.2. Preschool cohort

One hundred thirteen mothers and their typically developing and healthy children (56 boys) participated in the study. Children's age was 48–56 months ($M = 51.5$, $SD = 1.85$). Of the 113 mothers 72 (64%) were raised in kibbutz with collective sleep, whereas 41 mothers (36%) were raised at home with their parents. Note that overall demographic characteristics of families of infants and preschool children were comparable, though in the preschool cohort significantly more mothers were raised collectively ($\chi^2 = 11.10$, $p < .001$, *adj res* = 3.3).

2.2. Procedure

This research, approved by the University Review Board, was conducted in two phases; infancy data were collected first and preschool data collection followed. Overall, the two phases were designed to test similar constructs and questions. Thus, participant recruitment in both phases followed the same guidelines and similar measures were used (age appropriate adjustments in assessment of temperament are described below). In phase 1, mothers were asked to provide a short written evaluative narrative of their own childhood ecology. These data, pointed to a need for a more systematic evaluation of this variable, thus a new measure for maternal evaluation of her childhood ecology was introduced in phase 2.

2.2.1. Phase 1

In each kibbutz, potential participants were identified by the early education coordinator who invited them to participate in a study on "infant development". Of the 96 mothers who were approached, 91 gave their consent and subsequently received a package with questionnaires and a stamped return-envelope. Seventy-two questionnaires (79%) were completed; four infants were excluded as they were out of the specified age.

2.2.2. Phase 2

In each kibbutz potential participants were identified by the preschool coordinator according to their age and absence of developmental delays or health problems. Of the 146 mothers who were invited to take part in a study on "child development" 117 expressed interest (80%), and were contacted by mail and a follow up telephone call to set up a meeting. Maternal consent was obtained prior to filling out the questionnaires. For technical reasons, the questionnaires of four mothers had to be excluded.

2.3. Measures

2.3.1. Infant Sleep Questionnaire (ISQ; Morrell, 1999)

Mothers described and rated their child's sleep behaviors on seven items including bedtime habits ("On average, how long does it take to settle your child off to sleep?"), night waking ("On average, how many times does your child wake each night and need resettling?"), co-sleeping at the end of the night ("how often do you end up taking your child into your bed because your child is upset?"), and overall maternal cognition about the child's sleeping difficulties. Following infancy data collection an item was added to the questionnaire for the preschool data collection, rating intentional co-sleeping ("how often does your child settle for the night in your bed?"). This questionnaire yields three scores: (a) total sleep difficulty score (ISQ); ranging from 0 to 38, (b) maternal subjective evaluation of whether or not her child has a sleep problem, which was rated on a 4-point scale and served as a measure of mothers' perception of the severity of their child's sleeping problem; ranging from *no sleep problem* = 1 to *a severe sleep problem* = 4, and (c) sleep problem classification that is based on Richman's (1981) criteria defined as a settling or waking problem occurring five or more nights per week, plus one or more of the following: taking more than 30 min to settle, waking three or more times per night, awake for more than 20 min during the night, sleeping in parents' bed because upset. The ISQ served as an overall index (6 items, *alpha* = .58) for infants' sleep difficulties. As may be expected from an index that covers different and somewhat independent domains (e.g., sleep latency, settling difficulties, sleep fragmentation and night waking, co-sleeping), the internal consistency of the index is low. However, its reliability and validity had been established in infants and toddlers (Morrell, 1999), and further supported by actigraphy (Scher & Asher, 2004). The ISQ had been used as a measure of behavioral sleep problems in a wide age range, including infants in the first year (Schuetze, Lawton, & Eiden, 2006) and young preschool children (Hall, Scher, Zaidman-Zait, Espezel &Warnock, 2012). In the present sample it served for describing sleep difficulties in both the infancy and the preschool cohorts.

2.3.2. Emotional Status Index (ESI; Hock, McBride &Gnezda, 1989)

This questionnaire targeted maternal separation anxiety and indexed maternal feelings and evaluations with regard to three aspects of separation from her child: (1) mother's own feelings during a brief separation from her infant/child, (2) mother's perception of infant's/child's feelings when away from her, and (3) mother's concerns over an alternative caregiver's ability to adequately care for her infant/child. Responses were marked on a 5-point Likert scale from *low concern* = 1 to *high concern* = 5.

2.3.3. Biographical Information Questionnaire

This questionnaire provided information with regard to mothers' age, marital status, number of children in the family, education, and sleep ecology in which they were raised. In addition, kibbutz-raised mothers of infants used their own words to describe their evaluation of their own childhood sleeping arrangement.

2.3.4. The Infant Characteristics Questionnaire (ICQ; Bates, Freeland, & Lounsbury, 1979)

This 32-item questionnaire is designed to assess maternally perceived infant temperament on 7-point Likert scales, where a higher

Table 2
Summary of intercorrelations for sleep variables for infants[a] and preschool children.[b]

Sleep variables	1	2	3	4	5
1. Sleep problem[c]	–	.61**	.44**	.00	.21
2. # wakes per night	.51**	–	.51**	.12	.27*
3. # wakes per week	.44**	.68**	–	.11	.33**
4. Sleep latency	.13	.07	.06	–	.27*
5. Cosleep at night end	.24*	.39**	.41**	.24*	–

* $p < .05$.
** $p < .01$.
[a] Intercorrelations for infants ($n = 68$) are presented above the diagonal.
[b] Intercorrelations for preschool children ($n = 113$) are presented below the diagonal.
[c] Mothers' perception of severity of sleep problem.

score denotes a more difficult temperament. It yields four subscales: fussy/difficult, unadaptable, unsociable, and persistent. For the purpose of the present study, only the fussy/difficult scale (16 items, *alpha* = .87) had been used.

2.3.5. Children's Behavior Questionnaire (CBQ short form; Putnam & Rothbart, 2006)

This questionnaire was used to assess children's temperament. It consists of 36 items for mothers to describe children's behavioral responses and indicate on a 7-point Likert scale how descriptive they are of their child. Three scales were derived from CBQ: Surgency (12 items, *alpha* = .72), Negative Emotionality (11 items, *alpha* = .70), and Effortful Control (11 items, *alpha* = .70).

2.3.6. Own Childhood Sleeping Experiences Questionnaire (OCSEQ; Sharabany et al., 2001)

This is an 8-item questionnaire for the mother to evaluate the ecology in which she was raised; it consists of positive evaluations (i.e., the sleeping arrangement fostered sociability, provided security, encouraged independence) as well as negative valuations (i.e., the sleeping arrangement aroused anxiety, aroused depression, imposed loneliness, was restrictive) of the ecology in which she was raised. These items were rated on 4-point Likert scales ranging from 1 = "*I don't feel like that at all*" to 4 = "*I feel like that very much*". An eighth item addressed overall satisfaction with own childhood sleeping arrangement ("To what extent are you satisfied with the sleeping arrangement in which you were raised?"), which was rated on a 4-point Likert scale from 1 = "*not at all satisfied*" to 4 = "*very satisfied*". Reliability was computed for all 8 items (negative items coded in reverse), *alpha* = .87. This questionnaire was only administered to mothers in the cohort of preschool children, in phase 2 of the study.

In addition, based on the open-ended descriptions provided by mothers in the infants' cohort to the Biographical Information Questionnaire, their evaluation of overall satisfaction with their own childhood ecology was coded on a 4-point Likert scale from 1 = "*not at all satisfied*" to 4 = "*very satisfied*".

3. Results

3.1. Descriptive data

The distribution of sleep variables according to age group is presented in Table 1, and Table 2 summarizes the intercorrelations among the sleep variables for both cohorts. As expected, mothers reported significantly more sleep difficulties (ISQ score) for infants compared to preschool children, $t(178) = 3.33$, $p < .001$, $d = 0.53$. Night waking was reported significantly more frequently for infants than for preschool children, both per night, $t(176) = 6.54$, $p < .001$, $d = 1.07$, and per week, $t(177) = 9.29$, $p < .001$, $d = 1.40$. Preschoolers, on the other hand, had more difficulties settling to sleep; mothers reported significantly longer latency of sleep onset for preschool children, compared to infants, $t(173) = 5.73$, $p < .001$, $d = 0.90$. Note that no differences were found between infants and preschool children in reported frequency of co-sleeping at night's end, $t(173) = 0.54$, $p = .59$. As shown in Table 2, mothers' perception of sleep problems was significantly associated to night waking but not to settling to sleep, in both age groups. Since sleep variables were significantly associated to age, subsequent descriptive data are age specific.

3.1.1. Infants' sleep

In the infant group, 46% of the mothers perceived their infant to have a sleep problem and 43% of the reports met the sleep problem definition provided by Richman (1981). Mothers' perception of sleep difficulties (ISQ) was unrelated to infants' age, $r(68) = .10$, $p = .42$, but was negatively correlated to maternal age, $r(68) = -.27$, $p < .05$. Regularly practiced co-sleeping at the end of the night was reported by more than 20% of the families (see Table 1); still, the vast majority of mothers reported a rare use of this practice. Infants' fussiness was correlated to sleep difficulty score (ISQ) as well as mothers' perception of a sleep problem, $r(68) = .26$, $p < .05$ and $r(68) = .32$, $p < .01$, respectively. Maternal separation anxiety was correlated to mothers' perception of infants' sleep difficulties (ISQ), $r(68) = .38$, $r(68) = .30$, and $r(68) = .33$, $p < .05$, respectively for mother's feeling about separation from child, child's feeling about separation from mother, and mother's feeling about an alternative caregiver. Yet, maternal separation anxiety was not related to mothers' perception of infants' sleep as a problem. Finally, mothers of infants were significantly more likely to perceive sleep problems for girls than to boys ($\chi^2 = 4.08$, $p < .04$, *adj res* = 2.00).

3.1.2. Preschool children's sleep

It can be seen in Table 1 that 32% of the mothers of preschool children perceived their child to have a sleep problem, whereas only 23% met Richman's criterion for a sleep problem (Richman, 1981). This difference between mothers' perceptions and Richman's criterion was significant ($\chi^2 = 13.60$, $p < .001$, *adj res* = 3.70). Co-sleeping at the end of the night was practiced extensively for 16% of the children, was never in effect for 59% of the children, and was only practiced sporadically for the rest (see Table 1). Sleep onset in the parental bed was never practiced for 59% of the children, always in effect for 13% of the children, while the remaining families used this practice sporadically. Note that co-sleeping at sleep onset was not associated to mothers' perception of their child's sleep problem, $r(111) = .06$, $p = .51$. Children's age, $t(110) = 0.46$, $p = .63$, and gender, $\chi^2 = .46$, $p = .55$, were unrelated to mothers' perceptions of sleep problems. Mothers' perception of their child's sleep problem was correlated to children's temperament (CBQ); higher negative affectivity, $r(112) = .24$, $p < .01$, and lower effortful control, $r(112) = -.19$, $p < .05$, were associated with the perceived severity of children's sleep problem. However, mothers' separation anxiety was not related to their view of their children's sleep problem, $r(112) = -.07$, $p = .44$; $r(112) = .14$, $p = .15$; $r(112) = .05$, $p = .63$, respectively for mother's feeling about separation from child, child's feeling about separation from mother, and mother's feeling about an alternative caregiver.

In sum: Mothers of infants perceived more sleep problems for their children. The two age groups were similar in that severity of sleep problem was associated with the frequency of their children's waking up at night and with their difficult temperament. Only in the infancy cohort, perception of children's sleep as a problem was associated with gender, and sleep difficulties (ISQ) were associated to maternal separation anxiety.

Table 3
Mothers' perceptions of the ecology of their childhood according to sleeping arrangement.

Mothers' perception of own sleep ecology	Collective sleep		Home sleep		*t*	*d*
	M	*SD*	*M*	*SD*		
Infants						
Overall attitude (32)	2.73	1.08	3.62	0.52	2.25*	1.05
Preschool children						
Overall attitude ($n = 108$)	2.30	1.19	3.72	0.66	7.93**	1.48
Arousing depression ($n = 106$)	2.54	1.10	1.19	0.67	7.83**	1.48
Arousing anxiety ($n = 106$)	2.79	1.18	1.25	0.73	8.24**	1.57
Encouraging independence ($n = 103$)	3.28	0.92	3.06	1.09	1.05	–
Restricting development ($n = 103$)	2.13	1.14	1.28	0.78	4.45**	0.87
Arousing feelings of loneliness ($n = 106$)	2.61	1.09	1.42	0.84	6.26**	1.22
Providing security ($n = 105$)	1.85	0.92	3.66	0.76	10.60**	2.15
Encouraging social skills ($n = 103$)	2.84	1.07	2.95	1.08	0.49	–

* $p < .01$.
** $p < .001$.

3.2. Preliminary analyses

Preliminary analyses examined first whether mothers' separation anxiety and perception of child's temperament were connected to mothers' own childhood ecology. Using maternal separation anxiety as a dependent variable, we conducted a 2×2 MANOVA with age cohort (infants, preschool) and context (collective, home) as independent variables. The omnibus test of the main effect of age-group was statistically significant, $F(3,177) = 34.50$, $p < .001$, $h_p^2 = .37$, indicating higher separation anxiety in the infancy cohort. Follow up univariate analyses revealed significantly higher maternal separation anxiety with regard to mother's feelings when away from infant, $F(3,177) = 21.50$, $p < .001$, $h_p^2 = .11$; infant's feelings when away from mother, $F(3,177) = 47.50$, $p < .001$, $h_p^2 = .21$; and mother's feelings about an alternative caregiver $F(3,177) = 81.40$, $p < .001$, $h_p^2 = .32$. The omnibus test of the main effect of mothers' childhood ecology was also statistically significant, $F(3,175) = 2.80$, $p = .04$, $h_p^2 = .04$. Follow up univariate analyses revealed significantly higher separation anxiety for collectively raised mothers with regard to feelings about an alternative caregiver, $F(1,177) = 8.10$, $p = .005$, $h_p^2 = .04$. The interaction effect was not significant, $F(3, 175) = 2.05$, $p = .11$.

With regard to temperament, no significant differences were found between collectively raised and home-raised mothers in perception of infants' fussiness, $t(66) = 1.46$, $p = .15$, and in CBQ scores of preschool children, $ts(111) = 0.35–1.23$, $ps = .72–.22$. These analyses were conducted separately for each age group because assessments of temperament were age specific.

In a second preliminary analysis, mothers' overall evaluation of their own childhood ecology was examined with respect to children's age and own childhood ecology. Using mothers' overall satisfaction as the dependent variable, we conducted a 2×2 ANOVA with age cohort (infants, preschool) and context (collective, home) as independent variables. The omnibus test of the main effect of children's age was not significant, $F(1,138) = 0.49$, $p = .49$, but the omnibus test of the main effect of childhood ecology was significant, $F(1,138) = 24.40$, $p < .001$, $h_p^2 = .15$. Home-raised mothers evaluated the ecology of their own upbringing to be significantly better than collectively raised mothers (see Table 3). No significant interaction effect was found, $F(1,138) = 1.25$, $p = .27$. It can be seen in Table 3 that collective-sleep was viewed as significantly more depressing, arousing anxiety, restricting development, and creating feelings of loneliness, as well as providing a significantly lower sense of safety. However, the two childhood ecologies were not different with regard to encouraging independence and social skills.

In a further analysis, the seven OCSEQ items were standardized and submitted to an exploratory factor analysis, using a principal component factor extraction with varimax rotation. The analysis yielded two factors. Factor 1 (*alpha* = .87) was constituted of five items (*factor loading* were .81–.85; *eigenvalue* = 3.63), of which four indicated a negative maternal evaluation of her childhood rearing ecology (i.e., restrictive, creating anxieties, a sense of loneliness, and depression), and one indicated a positive maternal evaluation of her childhood rearing ecology in reverse (sense of safety); this factor explained 50% of the variance. Factor 2 (*alpha* = .63) was constituted of two items (*factor loading* were .85–.86; *eigenvalue* = 1.43) indicating a positive maternal evaluation of the influence of the childhood rearing ecology (i.e., encouraging independence and social skills); this second factor explained additional 22% of the variance. Factor 1 was significantly correlated to mothers' perception of children's negative affectivity, $r(101) = .22$, $p < .03$, but was not significantly correlated to neither surgency, $r(101) = -.05$, $p = .61$ or effortful control $r(101) = -.17$, $p = .09$ nor to mothers' separation anxiety, $rs(101) = .11–.18$, $ps = .27–.07$. Factor 2 was not correlated to children's temperament or to mothers' separation anxiety, $rs(101) = .08–.18$, $ps = .44–.07$.

In sum: In both age groups, collectively raised mothers and home-raised mothers did not differ in their perception of their children's temperament, and were comparable with respect to the expressed levels of maternal separation anxiety, with one exception: Collectively raised mothers expressed significantly higher anxiety with regard to an alternative caregiver for their child. Importantly, home-raised mothers evaluated the ecology of their upbringing significantly more positively compared to collectively raised mothers.

3.3. Mothers' childhood ecology and their perceptions of children's sleep

In order to examine the hypothesis that collectively raised mothers will report more sleep problems for their children, mothers' evaluation of sleep problems and the total ISQ scores were entered as dependent measures in a 2×2 MANOVA, with age cohort (infants, preschool) and context (collective, home) as independent variables. This analysis was conducted because the two dependent measures are correlated and represent two facets of mothers' perceptions of their children's sleep difficulties. The omnibus test of the main effect of maternal childhood sleep ecology was not statistically significant, $F(2, 175) = 0.90$, $p = .41$. The omnibus test of age-group showed a statistically significant main effect, $F(2, 175) = 6.57$, $p = .002$, $h_p^2 = .07$. Follow up univariate analyses revealed that mothers of infants reported significantly higher ISQ scores, $F(1,176) = 12.81$, $p < .001$, $h_p^2 = .07$, and evaluated more sleep problems, $F(1,176) = 5.60$, $p = .02$, $h_p^2 = .03$, compared to mothers

Table 4
Hierarchical multiple regression analyses explaining mothers' perception of their children's sleep.

Predictors	Total R^2	ΔR^2	β
Infants' sleep difficulties[a] ($n = 68$)			
Step 1			
Mothers' age	–	.00	.00
Infant's gender		.00	.00
Step 2			
Infants' fussiness (ICQ)[b]	.066*[a]	.066*	.26*
Step 3			
Mother's feeling about separation from child	.176**	.110**	.29*
Child's feeling about separation from mother	–	.010	.12
Mother's feeling about alternative caregiver	.224*	.048*	.23*
Preschool children's sleep problem ($n = 98$)			
Step 1			
CBQ-negative affect	.056*	.056*	.25*
CBQ-effortful control	.100*	.020	−.09
CBQ-surgency		.045*	.22*
Step 2			
Factor 1[c]	–	.010	.18
Overall attitude toward sleep ecology	.167**	.067**	−.26**

* $p < .05$.
** $p < .01$.
[a] ISQ – Infant Sleep Questionnaire.
[b] Note that the contribution of infants' fussiness to the explained variance in ISQ became non-significant once mothers' separation anxiety was entered into the regression equation.
[c] Factor 1, childcare ecology was perceived as arousing anxiety, depression, loneliness and as restrictive as well as providing lower sense of safety.

of preschool children. No significant interaction effect was found, $F(2,175) = 0.45$, $p = .64$.

Even though mothers' reports of infants' and children's sleep did not vary according to sleep ecology of maternal childhood, due to the marked differences in maternal evaluation of own childhood ecology between collectively raised and home-raised mothers a subsequent analysis examined mothers' perceptions of their children's sleep in the context of maternal evaluation of own upbringing.

3.4. Mothers' evaluation of own childhood ecology and perceptions of children's sleep

In order to examine the hypothesis that mothers with a negative evaluation of their own upbringing ecology will report more sleep problems for their children, mothers' perception of sleep problems and the total ISQ scores were entered as dependent measures in a 2×2 MANOVA, with age cohort (infants, preschool) and maternal evaluation of own upbringing (positive, negative) as independent variables. Expectedly, the omnibus test of age group showed again a statistically significant main effect, $F(2, 136) = 7.10$, $p < .001$, $h_p{}^2 = .095$, whereas the omnibus test of the main effect of maternal evaluation of own childhood sleep ecology was not statistically significant, but showed a trend, $F(2, 136) = 2.62$, $p = .077$, and the interaction effect was not significant, $F(2, 136) = 0.42$, $p = .66$. The trend in the foregoing omnibus effect notwithstanding, we conducted subsequent age-specific analyses to explain mothers' perception of sleep problems and total ISQ score, because age-specific differences were found consistently and data pertinent to maternal evaluations of own childhood sleep ecology was only available for a sub-group of the infancy cohort.

3.4.1. Infancy cohort

When focusing on specific sleep aspects, collectively raised mothers of infants reported significantly more night waking, $M = 2.23$, $SD = 1.56$, compared to home-raised mothers, $M = 1.66$, $SD = 1.26$; $t(66) = 1.65$, $p = .05$, $d = 0.40$. In contrast, home-raised mothers reported significantly more settling problems per week, $M = 1.26$, $SD = 1.62$ compared to collectively raised mothers, $M = 0.46$, $SD = 0.86$; $t(66) = 2.65$, $p < .01$, $d = 0.62$. Home-raised mothers also reported using more strategies to support infants' sleep, $M = 2.24$, $SD = 1.97$, compared to collectively raised mothers, $M = 1.50$, $SD = 1.53$; $t(66) = 1.63$, $p < .05$, $d = 0.42$.

In order to examine the unique contribution of the predictors to the explained variance in sleep difficulties, hierarchical multiple regression analyses were performed. Table 4 summarizes the results of the multiple hierarchical regression analysis for infants' sleep difficulties (total ISQ). As shown in Table 4, the regression equation was significant, *multiple* $R = 0.47$, $R^2 = .22$, $F(3,64) = 6.15$, $p < .001$. More specifically, mothers' feeling about being away from their infant contributed significantly ($\beta = .29$) to the explained variance in their reports of infants' sleep difficulties, $\Delta R^2 = .11$, $F(1,65) = 8.66$, $p = .01$. Furthermore, mothers' feeling about the alternative caregiver contributed an additional significant portion to the explained variance in ISQ score, $\beta = .23$; $\Delta R^2 = .05$, $F(1,64) = 3.96$, $p = .05$. It is evident from Table 4 that when infant fussiness was entered into the analysis first, it contributed a significant portion to the explained variance in infants' sleep difficulties, $\beta = .26$; $\Delta R^2 = .07$, $F(1,66) = 4.67$, $p = .03$. However, once mothers' separation anxiety was added to the equation, the significant contribution of mothers' perceptions of infants' fussiness became non-significant ($\beta = .016$, $p = .16$). Finally, mothers' childhood ecology was unrelated to the variance in mothers' perceptions of infants' sleep.

3.4.2. Preschool cohort

Overall, mothers' perceptions of their preschool children's sleep characteristics were similar regardless of their childhood sleep ecology. Specifically, the two groups of mothers were similar in their reports of wakes per night, $t(110) = 0.09$, $p = .93$, as well as of sleep latency $t(107) = 0.47$, $p = .64$ and co-sleeping at the end of the night $t(107) = 0.92$, $p = .36$. In addition, similar rates of co-sleeping at sleep-onset were reported by both groups (41% and 42% for collective-sleep and home-sleep group, respectively). Although, among those mothers who practiced co-sleeping at sleep-onset, collectively raised mothers reported higher frequency of this practice, $M = 4.14$, $SD = 2.66$, compared to home-raised mothers $M = 2.18$, $SD = 2.35$; $t(44) = 2.60$, $p = .02$, $d = 0.78$.

It was found that mothers' perceptions of their children's sleep problem were correlated to their evaluations of the quality of the sleeping ecology in which they were raised $r(99) = 0.20$, $p < .05$ and

$r(107) = -0.24$, $p < .01$, respectively for Factor 1, and for overall evaluation of own childhood ecology. Thus, a hierarchical multiple regression analysis was performed to determine the unique contribution of mothers' evaluation of their own childhood sleep ecology to the explained variance in their views of their children's sleep as a problem. First, it was established that mothers' evaluation of their own rearing ecology and their perception of their child temperament did not interact. Therefore, initial analyses computed a series of linear regressions for sleep problem measures by entering each statement of maternal evaluation of her rearing ecology and one temperament scale (either effortful control, or negative affectivity) together with their interaction term (Pedhazur, 1982). No significant interaction effects were found in these initial analyses.

Table 4 presents the regression analysis for mothers' perception of sleep problem; the equation was significant with *multiple* $R = 0.41$, $R^2 = .17$, $F(3,95) = 6.35$, $p = .01$. As shown, mothers' perceptions of their child's negative affect (CBQ) contributed significantly, $\beta = .25$, to the explained variance in their perceptions of the severity of the child's sleeping problem $\Delta R^2 = .056$, $F(1,97) = 5.73$, $p = .02$. Mothers' perception of child's surgency (CBQ) contributed additional significant portion, $\beta = .21$ to the explained variance in child's sleeping problem, $\Delta R^2 = .045$, $F(1,96) = 4.77$, $p = .05$. When entered last, mothers' overall evaluation of the sleep ecology in which they were raised contributed a significant portion, $\beta = -.26$, to the explained variance in their view of child's sleep problem $\Delta R^2 = .07$, $F(1,95) = 7.60$, $p = .01$.

To summarize, in the preschool age-group mothers' perception of their children's sleep problem was partially explained by their perceptions of their child's temperament (negative affectivity and surgency). Mothers' negative evaluation of their own childhood sleeping ecology contributed uniquely to the explained variance in their perception of their child's sleep as problematic.

4. Discussion

This research capitalized on the unique opportunity provided by kibbutz collective upbringing, which was described as an 'experiment in nature' (Beit-Hallahmi & Rabin, 1977), and examined the influence of mothers' sleep-related childhood ecology on their perceptions of their infants' and young children's sleep. Overall, the data did not support the hypothesis that being raised in kibbutz collective sleep, in and of itself, influences maternal perceptions of infants' and children's sleep. However, a complex picture with regard to the connections between mothers' upbringing and their sleep-related perceptions and practices has emerged.

Consistent with previous studies (Mindell & Owens, 2003; Sadeh, Mindell, Luedtke, & Wiegand, 2009; Sadeh, Mindell, & Owens, 2011), frequent waking during the night was a primary contributor to mothers' perception of sleep problems among infants and preschoolers. As expected, mothers viewed sleep regulation in infants as more challenging compared to preschoolers. However, though more waking per night and per week was reported for infants, a later bedtime hour as well as longer sleep latency was reported for preschoolers. These finding are in accord with a developmental trajectory by which overtime waking problems decrease and sleep-onset problems increase (e.g., Gaylor, Burnham, Goodlin-Jones, & Anders, 2005). Another developmental change relates to co-sleeping. At 4 years of age, occasional co-sleeping at night's end (i.e., reactive co-sleeping) was quite common, and it was associated to maternal perception of a sleep problem. However, reactive co-sleeping, which was used relatively regularly around 1 year of age, was not linked to maternal perception of a sleep problem, possibly reflecting a practice that stems from perceived developmental needs of infants, such as proximity and security (e.g., Higley & Dozier, 2009; Scher, 2001).

In the present research, the reported rates of infants' sleep difficulties and problems were in the higher range described in the literature. Infants' mean ISQ score was higher than the cut-off score defined by Morrell (1999) for poor sleepers. Moreover, an interrupted sleep pattern was reported for 45% of the infants; a rate considerably higher than the 20–30% of infants reported to not achieve consolidated sleep during the night (Sadeh et al., 2007), but in line with two other infant studies conducted in Israel (Scher, 2001, 2008). With regard to preschool children, the reported prevalence of night-waking was similar to rates for Israeli children of similar ages, as reported by Tikotzky and Sadeh (2001). The discrepancy for preschool children between mothers' evaluation and Richman's (1981) definition of a sleep problem is concordant with Morrell's (1999) conclusion that mothers' threshold for sleep difficulties is lower than that of researchers. However, in the absence of objective assessments, it is difficult to determine whether the perceived rates of problem sleep behaviors in this study reflect maternal sensitivity or children's signaling.

Similar to earlier research, "poor sleep" was associated to children's difficult temperament (e.g., Sadeh et al., 1994; Scher et al., 1998; Spruyt et al., 2008) and to higher levels of maternal separation anxiety (e.g., Scher & Blumberg, 1999). However, maternal separation anxiety was a primary predictor of sleep-related difficulties only for infants. Apparently, as children grow, maternal separation anxiety plays a lesser role in accounting for variability in mothers' perception of children's sleep quality. In addition to the across-age natural association of night waking to sleep difficulties, mothers also attended to age-specific manifestations of difficulties in self-regulation of sleep-wake states. Length of waking episodes and difficulty to settle back to sleep contributed to maternal impression of problems in infants' sleep, whereas co-sleeping at the end of the night was an additional marker of difficult sleep behaviors for preschool children.

4.1. Co-sleeping and maternal upbringing

Similar to the findings by Tikotzky et al. (2010), collectively raised mothers in the present study reported significantly more frequent night waking and co-sleeping for their infants, as well as more frequent co-sleeping at sleep-onset for their preschool children. However, in agreement with previous findings (Keller & Goldberg, 2004; Latz, Wolf, & Lozoff, 1999; Ramos, Youngclarke, & Anderson, 2007), co-sleeping during sleep-onset was unrelated to mothers' perception of difficulties in preschool children's sleep regulation. These findings are congruent with claims that co-sleeping is not a uniform phenomenon (Burnham & Gaylor, 2011), and that intentional co-sleeping should be distinguished from reactive co-sleeping (Ramos et al., 2007). The absence of associations between mothers' upbringing and reactive co-sleeping in the whole sample, along with more frequent co-sleeping at sleep-onset by collectively raised mothers of preschool children suggest that the latter reflected an intentional practice. This is highly compatible with Tikotzky et al.'s (2010) conclusion that collectively raised parents feel a need to compensate for their own childhood experience of parental absence by intentionally offering close parental presence to their children.

4.2. Mothers' childhood ecology and children's sleep-related difficulties

In the ecology of kibbutz collective sleep, parents and children were physically removed from each other during the night. Despite the availability of watchwomen during the night, such inherent parental absence inevitably renders children's nighttime signaling to parents ineffective. Considering infants' and young children's biological limits and developmental needs, this nighttime

arrangement created a stressful developmental context, especially for the regulation of sleep (Aviezer et al., 1999). Thus, similar to Tikotzky et al. (2010), we reasoned that the extensive childhood exposure to night-time parental absence would make collectively raised mothers particularly sensitive to parent-child separations, as well as influence their general sleep-related cognitions and perceptions of children's sleep. These predispositions and cognitions will, in turn, influence maternal nighttime behavior. In addition, as of necessity collectively raised mothers had a limited exposure to effective sleep-related parental practices, these restricted childhood models of nighttime parenting may also contribute to maternal feelings of low efficacy with respect to sleep, resulting in higher prevalence of reported sleep problems.

Contrary to expectations, no differences were found between collectively raised and home-raised mothers with regard to maternal perception of problems in their infants' and young children's sleep. Alternatively, we argue that parenting was shaped by mothers' representations of their childhood experiences and the ways in which individual mothers coped with them, both emotionally and cognitively. Indeed, congruent with expectations and in agreement with earlier findings (Sharabany et al., 2001) our second hypothesis was confirmed: As a group, collectively raised mothers viewed their rearing ecology more negatively. Yet, a median based dichotomy into positive and negative evaluation of own childhood ecology showed that a considerable number of collectively raised mothers had a positive view of their upbringing. Hence, collectively raised mothers are not a homogeneous group, as is also stated in various narrative documentations (e.g., Palti, 2005).

Furthermore, though difficult temperament contributed significantly to the explained variance in mothers' perception of their children's sleep as problematic, in both age groups and consistent with previous reports (e.g., Hayes, Parker, Sallinen &Davare, 2001; Sadeh et al., 1994; Spruyt et al., 2008), this association was unrelated to mothers' upbringing. These results are somewhat at odds with Tikotzky et al.'s (2010) finding that collectively raised mothers tended to stress temperament in explanation of their children's sleep behaviors. However, it is important to point that the present investigation studies the associations between children's sleep, their temperament, and mothers' background, whereas Tikotzky et al. examined parents' responses to hypothetical vignettes about infants' sleep problems. Thus, more research is needed in order to determine how maternal upbringing shapes mothers' causal attribution and perceptions of their children's sleep problems.

4.3. Mothers' separation anxiety

The third hypothesis which postulated that collectively raised mothers would be more sensitive to separations and express high levels of maternal separation anxiety was only partly confirmed. Interestingly, collectively raised mothers expressed significantly more anxiety than home-raised mothers about their infant's alternative caregiver; however they neither expressed more anxiety about separating from their infants nor did they attribute higher separation anxiety to them. It is not fully clear why distrust in alternative caregivers encapsulates collectively raised mothers' feelings about separation from their child; though it is possible to speculate that it resonates with their childhood experiences under the care of non-parental others (e.g., Levkovitz, 2007).

The associations found between maternal separation anxiety and mothers' perception of their infants' sleep are compatible with Scher's (2008) finding that mothers' separation concerns were significantly associated to objective assessments of their infants' night waking, and they lend additional support to the argument that mothers' needs may contribute to infants' interrupted sleep. When caring for infants, mothers need to flexibly integrate the child's signals and their own evaluation of danger and threat (George & Solomon, 2008), which among other things, may be based on the their own past experience. Finding higher separation anxiety for collectively raised mothers indeed supports the above interpretation since all infants in this research were enrolled in present time kibbutz daycare, which is markedly different in its practices from pasttime collective sleeping. In this context, mothers' uneasiness about an alternative caregiver's sensitivity to their infant's needs was powerful enough to contribute uniquely to the explanation of their evaluation of difficulty in their infant's sleep, above and beyond anxiety about separation from their child, and irrespective of maternal upbringing. These maternal concerns, which may be influenced by mothers' personal past experiences as well as by their present concerns about infants' care (e.g., Hock & DeMeis, 1990), appear to have an effect on mothers' perception of infants' sleep regulation.

4.4. Mothers' evaluations of their upbringing and children's sleep-related difficulties

Although collectively raised mothers evaluated the ecology of their upbringing more negatively than home-raised mothers, the variations found in their evaluations suggest that the effects of collective upbringing on mothers were not uniform. It is conceivable that mothers' negative vs. positive evaluations of collective upbringing, despite its being an unusual practice which was portrayed as inherently challenging (e.g., Sagi et al., 1985, 1994; Sharabany et al., 2001), were shaped by unique childhood experiences with own parents and other care-giving adults that varied among individuals. This is in line with Barrett's and Fleming's (2011) conclusion that variations in the quality of mothering are rooted in different early experiences as well as based on biological differences. Indeed, a good example for extant variations in early experience within the ecology of collective sleeping can be found in attachment research (Sagi et al., 1985, 1994), which found that about 50% of collectively raised infants were securely attached to their mothers, despite the challenges inherent to the child rearing ecology.

The substantial percentage of collectively raised mothers evaluating their upbringing-ecology positively renders as less surprising the absence of significant differences between collectively raised mothers and home-raised mothers in maternal perceptions of children's sleep. Positive evaluations, in this research, reflected a rearing ecology in which feelings of safety as well as low anxiety and depression were fostered along with independence and social skills. In contrast, negative evaluations of own child-rearing ecology indicated a developmental context in which high anxiety, depression, restriction and loneliness prevailed. Finding lower maternal threshold for their preschool children's sleep difficulties may reflect maternal sensitivities that in part originated in their own early sleep-related experiences; while maternal intervention strategies, such as intentional co-sleeping, may reflect compensation efforts that originated in mothers' own childhood experiences rather than their child's needs. Congruent with Bugental and Johnston (2000), our findings call for more attention in future parenting research to the impact of mothers' representations of their own upbringing, whether these are expressed by an explicit evaluation or implicitly by emotions, such as separation anxiety.

Finally, it is necessary to keep in mind that the absence of an objective assessment of children's sleep in this research restricts the conclusions that can be drawn about the validity of mothers' perceptions of children's sleep. Also, it is necessary to consider the influence of shared method variance on the associations between maternal representations and feelings, and their reports and evaluations of their children's sleep. Despite these limitations, there is particular merit to the quasi-experimental design employed by this research, which permitted an exploration

of trans-generational continuity versus discontinuity of sleeping arrangements in mother–child dyads of two age groups.

5. Conclusions

The present research illuminates complex links between parents' sleep experiences in childhood and their sleep-related parenting practices and concerns. It suggests that mothers' thoughts and feelings about their own childhood have a formative contribution to their sleep-related concerns and practices with their infants and preschool children. By focusing on the unique child rearing ecology of kibbutz collective-sleep, it was possible to differentiate between maternal upbringing and its pertinent internal representations, and to demonstrate that the latter constitutes a critical influence on parenting. Thus, this research along with other work (Tikotzky et al., 2010) demonstrates that parents' sleep-related practices and concerns are influenced by their own childhood experiences. Finally, although the present research has focused on mothers who were raised in a unique context, their children are raised in a conventional home-environment and they represent typically developing infants and preschoolers. Therefore, the implications of this study with its quasi-experimental design extend to parenting in general as it provided empirical evidence that parents' representations of their own early childhood experiences guide and shape their perceptions and practices as they care for their children.

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