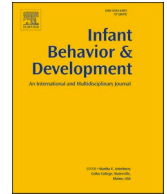




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Napping alone in the snow and cuddling with mommy at night: An exploratory, qualitative study of Norwegian beliefs on infant sleep[☆]

Monika Abels^{*,1}, Caroline Bosy, Ingrid-Camilla Myhre Fredriksen

UiT The Arctic University of Norway, Tromsø, Norway

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ABSTRACT

This study addresses Norwegian infants' sleeping places during the day and night. In the first part we asked the general public to indicate where they think infants should sleep by placing stickers on a depiction of different sleeping places. This revealed that infants were expected to predominantly sleep outside in a stroller during the day and either bedshare, room share or sleep independently from their parents at night. Interviews with Norwegian mothers confirmed these patterns and revealed that mothers emphasized the benefits of fresh air and being out in nature. They expressed valuing independence, though their opinions on how this could be achieved diverged, some proposing independent, other co-sleeping. Other outcomes of sleeping arrangements were rarely mentioned. Some, particularly mothers whose children bedshared or had different sleeping places from one night to the other or throughout the night, emphasized the infants' right to choose how to sleep. None of the mothers endorsed letting infants cry themselves to sleep but many mentioned the importance of the child feeling secure. We argue that the seemingly contradictory sleeping patterns is in line with cultural values for independence, social cohesion and a love of nature.

1. Introduction

While infants' nighttime sleeping places have been studied quite extensively and are subject to sometimes heated controversies concerning the "best" sleeping place, infants' daytime sleeping places have been studied much less frequently. This study concerns Norwegian infants' sleeping places and their mothers' thoughts about these. Norwegian infants' daytime and nighttime sleeping places are an interesting topic, because they not only seem different, but antithetical. Many infants share their parents' bed at night but at the same time, they nap in a stroller on their own during their daytime nap(s). The purpose of this study was twofold: on the one hand, we wanted to establish where persons of the general public believe that infants should sleep, on the other hand, we wanted to assess mothers' reasons for letting their children sleep in these places.

[☆] The authors thank all participants, especially the interview partners and the members of Tromsø BabyLab who helped to collect the data for study 1.

^{*} Corresponding author at: Department of Psychology, UiT The Arctic University of Norway, Huginbakken 32 Teorifagbygget Hus 5, 9037 Tromsø, Norway.

E-mail address: monika.abels@uit.no (M. Abels).

¹ Orcid Id: 0000-0003-2087-8673.

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1.1. Nighttime sleeping places

It is well established that there are large intercultural differences in infants' nighttime sleeping places (see e.g. Owens, 2004 for an overview). Indeed, infants' sleeping places have been described to reveal "some of the deepest moral ideals of a cultural community" (Shweder et al., 1995, p.21). In many cultural communities, infants normally sleep in close proximity with their caregivers and continue doing so for many years (see e.g. Owens, 2004 for an overview). Other cultural communities find infants' bedsharing with their caregivers problematic, because they fear that it is related to sudden infant death syndrome (i.e., SIDS, for example Mitchell et al., 1992; Nakamura et al., 1999) or are concerned about the developmental consequences of co-sleeping (see Okami et al., 2002, for a discussion). However, numerous publications also defend co-sleeping, saying that this is the evolved way for children to sleep (McKenna et al., 1993), that it is positively related to breastfeeding (Buswell & Spatz, 2007), parent-child relationship (Ball et al., 2000; Hayes et al., 1996; Mileva-Seitz et al., 2016) and children's development (Okami et al., 2002). Recent papers have argued that the discussion should not be about sharing a bed per se but about how to make bedsharing or co-sleeping safe for the children, if parents choose it (Barry, 2019; Gettler & McKenna, 2010).

An important discussion on psychological effects of co-sleeping concerns whether or not bedsharing promotes or hinders infants' development of independence. Returning to the cultural perspective, co-sleeping is generally associated with families from cultural communities valuing interdependence, expressed for example through physical closeness of its members (e.g. Morelli, Rogoff, Oppenheim, & Goldsmith, 1992; Yovsi & Keller, 2007). In some societies, co-sleeping prevails even when the culture has changed, causing conflicts between values and practices (Shimizu et al., 2014). However, in other places such as the USA (Okami et al., 2002) or Italy (Cortesi, Giannotti, Sebastiani, & Vagnoni, 2004) co-sleeping (re)emerges as "a lifestyle choice" (Dollberg, Shalev, & Chen, 2010). We would argue that lifestyle choices are driven by parents' values nevertheless, as is illustrated by the general differences in childrearing agendas between solitary and co-sleeping families (Okami et al., 2002). Maybe in line with these cultural findings, bedsharing is sometimes considered an obstacle to infants' development of independence (see Keller & Goldberg, 2004 for a discussion). Indeed, Korean mothers are concerned about diminished autonomy in children through co-sleeping and argue that children should start sleeping independently between 5 and 6 years because they "need to learn independence and autonomy to get ready for elementary school" (Yang & Hahn, 2002, p. 153).

However, this connection between co-sleeping and lack of independence does not seem universal. In a study on mothers and their children in California, the mothers who bedshared with their children were more autonomy-supportive than the others (Keller & Goldberg, 2004). In addition, it seems that sleeping independently fosters independence in sleep-related areas (e.g., falling asleep, sleeping through the night), but not necessarily other areas, such as self-reliance and social independence (including dressing oneself, entertaining oneself or resolving problems with playmates, making friends) which are more pronounced in bedsharers (Keller & Goldberg, 2004). These latter results find some support by a connection between co-sleeping and attachment security (Mileva-Seitz et al., 2016) which may be related to infants' social skills. As attachment security is also related to infants' independent exploration (Ainsworth, Blehar, Waters, & Wall, 1978) a connection between co-sleeping and exploration can be assumed. The self-regulation concerning solitary sleepers seems often to depend on the presence of transitional objects (Hayes et al., 1996; Morelli et al., 1992).

Interestingly, Welles-Nystrom (2005) described co-sleeping in Sweden as a frequent and normal sleeping arrangement up to school age, which parents do not perceive as problematic. Maybe this is not so surprising as Scandinavians have been found to show high degrees of social cohesion (Dragolov, Ignác, Lorenz, Delhey, Boehnke, & Unzicker, 2016), a concept related to interdependence discussed above. Data from Scandinavia indicates that the vast majority of infants sleep in the same room as their parents, with a considerable portion sharing their parents' beds (Osberg et al., 2021; Wennergren et al., 2021). Interestingly, there seems to have been an increase in bedsharing in the last two decades (Wennergren et al., 2021). In Norway, more than 60% of infants below one year of age were recently reported to routinely share a bed with their parents at night (Osberg et al., 2021). Osberg et al. (2021) are concerned about these results, particularly when bedsharing is combined with risky behaviors such as the consumption of tobacco or alcohol or unsafe sleeping places, as this increases cases of sudden infant death syndrome. Most of the public recommendations in Norway however, reflect the high prevalence of bedsharing and do not stress the avoidance of bedsharing, but how to do so safely (e.g., Helsensorge, 2018; Landsforeningen uventet barnedød, n.d.).

1.2. Daytime sleeping places

Infants' daytime sleeping is much less discussed than nighttime sleeping. However, in the context of Scandinavia/the Nordic countries sleeping patterns at night and during the day may seem contradictory. While bedsharing is common in Scandinavia, it is also a common practice in Nordic countries to let infants nap outside in a stroller, often alone, even in the winter. As far as we know, there is very little research on this topic, but it is occasionally commented on in international newspaper articles or other media. These often express surprise that infants sleep outside in very cold temperatures and may even be left outside cafes while their caregivers are inside (e.g., Lee, 2013; Cavanagh, 2020). In Norway, the fact that children sleep outside is hardly a matter of discussion, though there may be concerns surrounding safety and the weather. While in Norway you can find the rule of thumb that it is ok to let your child sleep outside when the temperature is above -10°C (14 F) (Kvam, 2021), infants do not seem to suffer from temperatures as low as -25.9°C (-14.5°F) (Tourula, Isola, Hassi, Bloigu & Rintamäki, 2010).

While the few studies on infant outdoor sleeping in the cold seem to suggest that children sleep longer when outside (Tourula et al., 2010), we know little about caregivers' reasons to let their children sleep outside. When interviewed about their children sleeping outdoors, Finnish mothers commented on four major areas (Tourula et al., 2013 - the only study known to us on this topic): family well-being, security, adaptation to the northern environment and cultural knowledge building. When talking about family well-being,

mothers commented on aspects such as family routines and health benefits of being in the fresh air. The main security concern of Finnish mothers was the cold or adverse weather conditions and how to protect the child, including when to move the child's sleeping place inside. When talking about the northern environment mothers commented, that they wanted to instill respect for and a love of nature in their infants and help their child to adapt to the extreme climatic conditions. In terms of cultural knowledge mothers asserted the normativity of having infants sleep outside.

We know little about other effects, for instance in terms of independence mothers associate with outdoor sleeping. This association seems plausible, because sleeping outside in a stroller in the cold, seems to require a high degree of self-regulation or independence from the infant. This would also be in line with Norwegian cultural values which have been described as individualistic (e.g., Hofstede et al., 2010). We also do not know whether caregivers see their daytime and nighttime sleeping arrangements as contradictory, complimentary, or neither.

2. Study 1

The aim of study 1 was to establish whether the sleeping patterns described above are reflected in the general public's preferences for sleeping places for infants in northern Norway. That is, a slight majority should prefer the infant sleeping with or close to the parents at night, compared to sleeping alone, while a large majority should prefer an outside sleeping place for infants during the day.

2.1. Method study 1

Members of the general public in northern Norway were presented with posters that depicted possible sleeping places of infants during the day and during the night. Participants were asked to place stickers on places that they found appropriate as a sleeping place for infants during the day and during the night. Participants were allowed to place stickers on several places if they found more than one appropriate, although this was rather the exception than the rule. As the data collection was done in the Arctic, we decided to use the same lighting for the day and night depiction (see Fig. 1 for an example).

The data collection was done on three occasions. The first and the second occasions were during the opening of UiT The Arctic University of Norway to the general public. On one day the university is visited by classes of school children for whom different types of activities are offered in order to familiarize them with research done at the university. Events on the second day, at the weekend, are usually visited by the interested public, including many families with children. On both days, research groups present themselves and

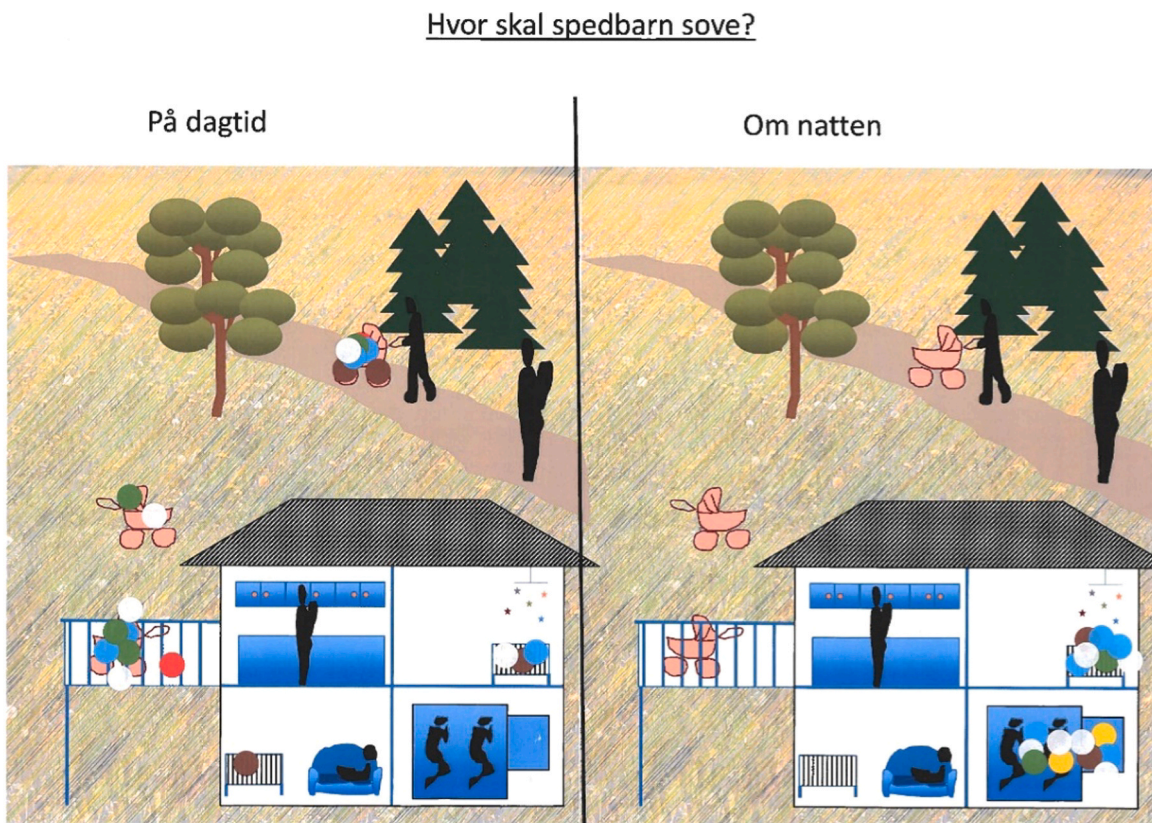


Fig. 1. Example poster: high school students' sleeping place preferences for infants; left daytime, right nighttime.

their work at stands in an open hall. Visitors stroll and get an opportunity to interact with researchers and receive an insight into their work. The poster was presented as one of several activities at the stand of the Research Group for Child Development and visitors were asked if they were interested in participating in the ongoing research. If they agreed, they were asked to indicate where an infant should sleep during the day and the night in their opinion by placing stickers on the poster. There were few refusals to place stickers by those who had already approached the stand. Members of the research group were present and monitored the placement of the stickers and intervened when stickers seemed to be placed randomly for fun.

On the third occasion, the Tromsø BabyLab at UiT The Arctic University of Norway was visited by a group of 15 high school students who were also presented with this task. All of them agreed to participate. Due to the open character of the first and second event, we cannot provide detailed sample descriptions. The number of stickers placed and the estimated number of participants are presented in Table 1.

2.2. Results study 1

We could confirm the general pattern described above. As can be seen in Fig. 2, most participants preferred a sleeping place outside during the day. The most frequently chosen place for the infant to sleep outside during the day was in a stroller (94.4%). Of the three options presented in the picture, a caregiver going for a walk with the stroller was the most preferred placement of the infant (94 stickers), followed by a stroller placed on a verandah or balcony (49 stickers). A stroller placed in the garden was the least preferred (26 stickers). The option of an adult carrying a child was rarely chosen (9 stickers). Inside sleeping places either in a baby bed with or without and adult present in the same room (54 stickers) or in proximity or body contact with a caregiver (co-sleeping and carrying: 31 stickers) were chosen more frequently than expected (34% of the daytime sleeping places). In a conversation with one of the participants who placed several stickers on the daytime poster, the participant explained that daytime sleeping places were dependent on many considerations, for example the caregivers' activities and plans.

For the nighttime sleeping places, the options of a separate bed next or attached to the parents' bed were chosen most frequently (72 times), followed by a baby bed in a separate room (62 times). Co-sleeping in the parents' bed was chosen 39 times. Overall, different types of co-sleeping (room sharing and bed sharing) amounted to 62% of the choices for infants' nighttime sleeping arrangements. All other sleeping places were rarely selected for the night.

2.3. Discussion study 1

We could confirm a preference for outdoor sleeping during the day and a preference for sleeping close to parents at night, followed by sleeping in a baby bed in a separate room. The general patterns resemble each other in the posters from all three events. For example, there is no significant difference between the distribution of inside and outside sleeping places during the day ($X^2(2, N = 270) = 5.40, p = .067$) or the night ($X^2(2, N = 215) = 5.01, p = .081$) between the groups. The buggy is the most preferred outside sleeping place during the day for all the groups ($X^2(2, N = 179) = 5.67, p = .058$), and the distribution between nighttime sleeping places does not differ significantly ($X^2(4, N = 173) = 6.59, p = .159$). Therefore, we consider these to be a general preference of the population of the Northern Norwegian area in which the data collection was conducted.

A total of 15 stickers was placed in locations such as the trees, on the roof or in the cupboard, leading to the conclusion that despite our efforts, a few of the participants were not very serious about placing their stickers. However, on the most closely monitored occasion involving the highschool students none of these joke stickers were placed but the general pattern found on the other two occasions was nevertheless reproduced.

A more serious concern might relate to many of the younger school children referring to the fire prevention training that they had recently received. Some expressed concern about placing an infant on a different floor of the house in light of this. Nevertheless, many placed their stickers on the separate bed in the separate room on the second floor of the house (see Fig. 1), which suggests that they were able to understand the picture of the house as an abstraction. It is possible, however, that the danger of fire does influence parents' choices for their children's sleeping places as well. It is believed that death of children due to fires have decreased since 1970 because of parents' increased focus on safety (Sesseng et al., 2017). And while there were only seven fire-related fatalities in children between 0 and 7 years in Norway between 2005 and 2014, six of these occurred while sleeping (Sesseng et al., 2017).

Another concern may be that this finding does not generalize to all seasons. As explained above the lighting was not changed for day and night as the data collection was done in the Arctic where differences in lighting are not relevant during the summer or the winter. However, the light and the green trees and ground might have implied to the participants that the question referred to the summer only. As we have seen, in Section 1.2, Finnish parents let their infants sleep outside in the winter. Therefore, we have no reason

Table 1
Number of stickers placed and estimated number of participants in study 1.

	Stickers placed		N
	daytime	nighttime	
Predominantly school children (6th-10th grade)	118	94	app. 90
Predominantly adults	132	104	app. 100
High school students (17–18 years)	20	17	15
Total	270	215	app. 200

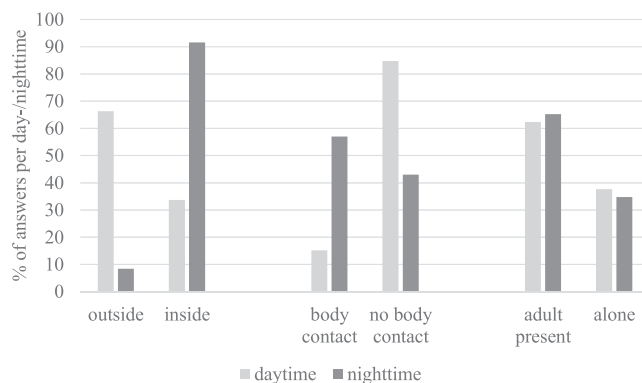


Fig. 2. Preference for different sleeping places expressed by the participants of study 1.

to assume that these sleeping places are seasonal.

3. Study 2

3.1. Method study 2

The second phase consisted of semi-structured interviews with mothers on infants' sleeping places. The interviewers asked about their practices and their reasons for them. They probed particularly into developmental consequences and asked mothers to contextualize these practices in their experiences with family, friends, and institutions. The aim of study 2 was to get some insights what mothers' decision on their infants' sleeping places are motivated by and whether they think about cultural values, norms, and aspects such as their infants' autonomy when making these decisions.

3.1.1. Participants

13 mothers participated in the study in total. Initially, they were recruited through Tromsø BabyLab's Facebook page where a posting asked potential participants to contact the research team. Additionally, the authors recruited participants by asking their social contacts to inform parents they knew of the study. Later participants were recruited purposively to shed light on social changes over time and regional differences.

The mothers were all Norwegians. They were on average 32.2 years old (range 22–45) and had on average 1.9 children (range 1–4). The mothers' youngest children were between 8 months and 5 years, the oldest child was 23. Most mothers lived with their youngest child's father, one lived with the child's biological mother, and one had recently separated from the child's father. Eight of the mothers had undergone at least some university education. One had a PhD, three were students at the time of data collection, and five mothers had non-academic professions. This sample roughly reflects the educational attainments of the female population between 25 and 39 in Norway of whom app. 60% have undergone university education (Statistisk sentralbyrå, 2021). Eight of the mothers were involved in social disciplines or professions such as pedagogy, psychology, or social work. This also reflects the workforce of Tromsø in which 57% of the female workforce between 25 and 39 work in either health and social work or teaching (see Statistisk sentralbyrå, n.d.).

3.1.2. Data collection and data analysis

The mothers were interviewed between spring 2020 and 2021 with a protocol approved by the Department of Psychology's internal research ethics committee at UiT The Arctic University of Norway. Before the interviews, informed consent was established with the participants, and they were asked to fill in a questionnaire on their demographic background. Most of the interviews were conducted via video calls by the second and third authors, two were conducted with the first and third author and the interviewee present in a meeting room at the university. One mother who had additionally agreed to participate withdrew from the study because she felt participating by video call was too difficult. Each interview was transcribed by the interviewer who conducted it. One interview transcription was incomplete due to technical problems, but was included in the analysis, nevertheless.

The interviews were analyzed qualitatively using systematic text condensation (Malterud, 2012) and drawing on interpretative phenomenological analysis (Smith & Shinebourne, 2012). After reading the interviews as a whole, key statements were extracted. In the next steps, recurrent themes such as "fresh air" or "infants crying themselves to sleep" were identified independently by author 2 and 3 in the first nine interviews. There was a strong agreement between the two coders about the themes and many of the superordinate themes or concepts of the interviews. Analyses of the additional interviews and the synthesis of results presented here were done by the first author.

3.2. Results study 2

3.2.1. Daytime sleep: napping outside in the stroller

11 of the 13 mothers reported that their child slept outside, at least some of the time, seven of them exclusively. Most slept in a stroller, one of them also occasionally in a baby sling. In the four intermittent cases, outdoor sleeping was deferred due to the infant's physical condition (illness), lack of an available space, or convenience. The two remaining children slept either in a baby sling or in a bed with the parent during the day. Interestingly, one of these mothers reported that she had tried to get her older child to sleep in a stroller, but the child would always cry, so she finally gave up.

Some of the mothers replied that they had never reflected on outdoor sleeping when asked why they chose it. Several mothers expressed that it was a norm for Norwegian infants to sleep this way. For example, Inger² (38, 1 child) explains:

It just is like that, that one sleeps outside during the day. My god, I think all children do that, like the ones I know “no, she sleeps outside in the stroller during the day” (nods) Well, then they do that. (...) Yes, it is also just that, I haven't given it a single thought, to be really honest.

The exact practices of letting the infant sleep outside differed to some extent. In some cases, the infants only slept during walks or when the stroller was rocked, some mothers reported staying with their children until they were asleep, while others left their children to fall asleep on their own. Several mothers reported using baby slings or carriers at least occasionally. While a few found them extremely useful, for instance to have their hands free for housework or an older sibling, or to move in difficult terrain or while traveling, others did not find them practical, particularly not on a daily basis.

All of the mothers reported taking some precautions when letting their children sleep outside. However, none of them seemed overly concerned- in spite of single cases of babies being attacked by an animal, an infant being strangled in a buggy strap, or a stroller being blown into the sea being reported in the media occasionally. Several mothers referred to kindergartens having taken precautions after one case like this, but it did not seem to affect their private choices. Most of the mothers kept the stroller within view and/or placed a baby monitor with the infant and/or checked on the infant frequently.

In winter, the infants were dressed in warm clothes and placed in sleeping bags in the stroller. A place that was shielded from the wind was selected, some also mentioned that placing the stroller underneath a roof was ideal. Most mothers did not feel that the cold in the winter was a problem for the infants. There was a variety of temperatures mentioned as the lowest acceptable temperature for infants' outdoor sleeping, though, ranging from -4°C (app. 28 F) to -20°C (-4 F). Some mothers noted that the temperature alone was not enough to determine whether an infant can sleep outside, but that the wind was also important to consider. Several seemed more concerned about the heat and the sun during summer and felt it was difficult to dress the infants appropriately.

Most mothers felt that one of the advantages of sleeping outside was that the infants get fresh air. The reason why fresh air is good was phrased in different ways. Many mothers did not elaborate on the advantages of fresh air, but several commented that it was healthy to get fresh air, while one mother reported that she knew that there is no empirical evidence that sleeping outside is healthier. She preferred a cool sleeping place for her children, nevertheless, and felt that letting the children sleep outside was more convenient than creating appropriate conditions in a room during the day. Some mothers felt that the children slept better when outside. Occasionally, this was connected to their own preferences sleeping with an open window and/or in a cold place. One mother admitted that it may just be due to the children being used to that routine that they sleep better outside. Jorunn¹ (45, 4 children): “Mine have probably slept better outside. (interviewer: mhm) But that may just be about habits, and that one gets used to it from when one is small.”

There were also some references to the culture and a general appreciation of being outside, as well as the reference to Norway being generally safe. As Berit² (43, 2 children) explained:

There are certainly such notions that it is healthy and natural to sleep outside, maybe. And maybe that many Norwegians have a close relation to being outside. Outdoor life. This is a little bit of a tradition that we also have, actually. We often go for walks/hikes and that is natural for us. And then we also have generally low criminality and a smaller, bounded society that make it possible, maybe. I think it is a difference to live here than in New York or Cape Town.

Siri² (38, 3 children) considered population density and the legal situation when comparing her choices in Norway to those she made while being in the USA:

Here in Norway, I would leave them outside while being inside a café in the city center. But I wouldn't do that in the US. (...) because it's not allowed, so the police would be called (laughs) (...) but also there are more people, and there are more weird people.

She conceded that the same caution might be necessary in big cities in Norway, however. The topic of letting their infant sleep outside a café when they were inside raised by Siri in this example, was broached with three more mothers but none of them embraced the idea. One of them said, she just did not visit cafes frequently when the infant was very small. The other mothers had safety concerns, regarding people and the environment. As Else² (28, 1 child) reflected: “So, I don't fully trust other people. It's very quickly done to snatch a stroller.”

Mothers of slightly older children generally reported that their children stopped napping regularly during the day between 2 and 3.5 years. Therefore, some of the reports of daytime sleeping reported by the mothers are retrospective. We assume that they recall the

² All the names are pseudonyms to protect participants' privacy.

general patterns accurately, nevertheless.

3.2.2. Nighttime sleeping places

All of the infants in this sample had slept in the same room as their parent(s) at one point of time. Nine of the infants had shared their parents' bed, four had their own sleeping surface either right next to the parents' bed or somewhere else in the parents' bedroom. There were individual differences in when and how long bed- and room-sharing took place. For instance, one mother explained that the parents initially did not want to share the bed with their oldest baby because they, particularly the father, were afraid that they might roll onto the child in their sleep. However, they realized that sleeping in separate beds did not work well for them, so they took the baby into their own bed and did so with the younger sibling from the start.

While three of the children who ever bedshared with their parent(s) still slept close to their parents at the time of the interview (children's ages 2–5 years), there was a change in the sleeping arrangement for the other infants (see Table 2 for details of the past and present sleeping arrangements). While one child started sleeping in his own bed in a separate room at 4 months, most changes occurred between 7 months and one year and were often linked to other changes, such as the end of nighttime breastfeeding, the mother rejoining the workforce or the infant starting kindergarten.

Interestingly, there seemed to be regional differences in infants' sleeping arrangements in Norway. Seven interview partners were from northern Norway, while six interview partners were from more southern areas. The four children who were sleeping in their own room and their own bed were all from the southern sub-sample. All of the children that still bed- or room-shared and all except one that had a mixed pattern were from the North. And this in spite of the northern children being older on average than the others. While this is still hypothetical, it could be associated to the climate or the sub-cultural differences within Norway, potentially related to settlement structures and religiosity.

While the topic of daytime sleeping places was largely uncontroversial and reasons for letting a child sleep there were not particularly elaborate, the topic of nighttime sleeping places led to more elaborate answers revealing both values and conflicts the mothers experienced.

Some of the mothers who practiced bedsharing reported that it was a convenient choice, for example regarding breastfeeding or monitoring a sick child. Some of them also felt that they got better sleep with the child close by as they avoided getting up at night to console a crying child and that the children felt safer. They also felt it was enjoyable or cozy to have the children in their bed. Some mothers felt that bedsharing ensured that their infants felt secure. As Hilde² (33, 3 children) puts it:

So sleep is for us an important part of this, to be able to give that closeness and care, because there are long days in kindergarten and we are at work and we are gone and that- it's like things happen, isn't it? So I feel that it is very important for my kids to feel safe and in a way that they belong in a place. That closeness is somehow so important.

Some of the mothers in both the bedsharing and the other group mentioned being concerned about SIDS, but the concerns were put to rest quickly by those who decided to bedshare, nevertheless. Mothers also received some divergent advice. While one mother reported that they were told about the benefits of bedsharing, but could not get themselves to do it, another mother mentioned that the infant's grandmother felt that they were taking too much time to move the infant out of their bedroom.

While there were parents who were bedsharing not only with their youngest child but also with the six-year-old sibling, other mothers did not think this was acceptable for them. Some of the mothers also commented on their privacy as a reason for moving their infant to a separate room.

For example, Else:

(...) I have heard stories where the child is not able to sleep in their own room until they are around 4–5 years old. I think I cannot bear to have the kid in our bedroom for several years. We must have some privacy too.

Mothers who reported moving their children out of their bed or room felt that they and sometimes also the child slept better this way. Two also commented on the fathers' sleep. In one case the father had a light sleep and got disturbed by the infant easily, the other was an agitated sleeper, who might endanger the child according to the mother.

3.2.2.1. Own room. "One wants the child to learn to fall asleep on their own, that's the best." (Marit², 22, 1 child).

The mothers whose children are sleeping in a separate room sometimes mentioned that the infants had to practice sleeping on their own. As Marit puts it: "But then it happened that we just practiced letting her fall asleep there, in her bed."

Table 2

Past and present sleeping places of infants.

	Bedsharing with parent (s)	Youngest child's current sleeping place				Total
		Roomsharing with parent (s)	Roomsharing with sibling	Own bed, own room	Mix ^a	
Ever bedshared with parent(s)	2	1	1	1	4	9
Ever room-shared with parent (s)	–	–	1	3	–	4
Total	2	1	2	4	4	13

^a Refers to children who either change their sleeping location during the night or who sleep in different places according to their own choice (also see Section 3.2.2.2).

Interestingly, many of the children who were sleeping in their own bed in a separate room also made use of transitional objects. Several mothers report that objects are very important for the child to settle down, be it a parent's T-shirt, a stuffed toy, or a cloth. Some used pacifiers in addition. As Dagrún² (22, 1 child) explains: "It's a security for him. Especially when he is not sleeping with us, that he has something that is safe for him with him all night long."

3.2.2.2. Individuality and child's choice. The majority of the mothers mentioned that choices were determined by the infants' characteristics, needs, or by the child's choice. For instance, Liv² (28, 1 child) explained that "one has to see what type of child one has" when making decisions about sleeping arrangements. Or Else says: "So I think the consequence must really be just listening to your own child, not others." Others said that the child steers the process on sleeping places or that the child chooses where to sleep. Bedsharing mothers are also certain that their child will develop a wish or notify the parents when they are ready to sleep alone. Berit explains, when asked when her child will sleep alone:

Yes, I think maybe she herself will have a wish for it eventually. So when she takes the initiative for it, and she does that from time to time; "Now I want to sleep alone or sleep in my room", we support her in that. But it is not the case that we have any plan that now you have to get out of here.

While mothers whose children sleep in a room of their own occasionally claimed that the child steered the process themselves, the most elaborate proponents of the idea that the infants themselves should get to determine their sleeping places seemed to practice either co-sleeping or a mixed pattern.

3.2.3. Infants crying themselves to sleep

None of the mothers, whether or not they shared the bed or room with their infant, was a proponent of letting infants cry themselves to sleep. Liv gives an elaborate explanation of this when asked what she thinks about letting infants cry themselves to sleep:

I am completely against it, really. Basically, there may always be situations where one has tried "everything", but personally, I am not for it. Crying is an expression of some need that is anything but "go away mom". It is an expression that one needs something, that the child needs something, whether it is cuddles or care or closeness, someone who is there. In a way, they are not crying because they want you away. So, I think that, in my eyes, it would at least be not to listen to the child's signals then. They cry because they need something. But yes, of course it is tiring. If there are children who have great challenges with sleeping, then of course the parents will eventually become quite desperate then, that they become very tired. So I understand that one might (say) "yes, we can just try it, see if it works" as a drastic method, but then one may just realize that one has a child who needs more closeness, and may then have to change routines after that then. So no, (I am) not for the crying method.

Nevertheless, Liv feels it is also wrong to let the children become used to a parent sitting with them until they are asleep. She prefers going out of the room and returning if the child cries.

I have in a way decided that I will not sit next to him and hold him in my hand and cuddle him on the cheek until you fall asleep, I pull myself out and if you [cry], I will come in again. In a way that he was not used to me standing there until you fall asleep

Marit points out that it may also depend on the child's age. That she may be less likely to react to every complaint of her child now at age two than earlier:

Because I knew she had bathed, she had eaten, she was ready to sleep, she just did not want to sleep. But when she was so small, I did not know if it was anything else. If she was bothered by something or something like that, then in a way I always took her up then and did it again, and she calmed down again.

Most mothers were very determined to not let their infants cry, however. Jorunn commented on a practice she called the "five-minute method", which seems to be a variant of the Ferber method. According to this method, the parents leave the crying infants in their bedroom and then return to console the infants without taking them out of bed, only to leave again. She said that this was very popular when she had her first child. However, she did not endorse it herself.

(...) she (oldest child) did not like the cot. When we then tried to have her in the cot, she screamed so much. (interviewer: Yes.) Yes, and at that time this five-minute method was very popular. Have you heard of it? The kids will scream for five minutes, then you should go in and say: "I'm here". Then they should scream for five minutes, then you should go in and say it, and I- it does not work for me.

Some mothers commented that they had experienced some disagreement concerning this topic with others, for instance older family members. For example, Else explained: "No, the only thing is my partner's mother thought we were too slow to let her sleep in her own room. She let them (her own children) cry. So, she thought we were too slow with our child."

3.2.4. Developmental consequences of nighttime sleeping arrangements

3.2.4.1. Independence. Interestingly both mothers who bedshare and those who let their infants sleep in their own room remark on the development of independence. Those, whose children sleep in a separate room, feel that sleeping with a parent makes the child depend too much on the parent. They fear that this will make it difficult for the child to cope with instances such as their parents' absence or sleepovers. Else:

It is important in relation to independence that they are able to sleep in their own bed and in their own room. And to start so early, one really does that with everything else. One starts the upbringing from the time they are a few months old, that's what they do with everything else. By learning to read books, sing and talk to them all the time, those are the things they say (inaudible), so why not start with independence then.

In contrast with this notion, many of the mothers who practiced bedsharing felt that their children were also independent. As Astrid² (37, 3 children) puts it when confronted with the idea that sleeping alone and becoming independent could be related:

No, I think my kids have been very independent since they were very young. And I think that, personally, I think it has something to do with them feeling confident that they are getting what they need, so they are in a way free to explore the world the way they want, then. But it can have so much to do with personality, so it is very difficult to draw any conclusions in a way.

Other mothers are less cautious in their assumptions about causality than Astrid. They feel that the closeness at night leads to their children being able to be courageous, free, and independent during the day, for instance needing less affirmation from the mother during play or exploration.

For example, Hilde says about body contact: "We also know that closeness is very important, and when sleep can be safe, the kids become safer too. They dare more and are more confident in themselves in play." Grete² (32, 2 children) elaborates:

I think that if we had rejected (...) her and said: "no you should sleep in your room" and (...) 'forced' her to sleep there, then it might have done that she had, yes, become more insecure, not daring things, yes, that the nearest development zone becomes insecure instead of that she has a safe base and that she dares to explore.

One mother also challenged the notion that letting infants sleep in their own room is actually related to the wish to make the infants independent or whether it is motivated more by the parents' wish for privacy.

3.2.4.2. Emotion regulation and relationship building. While comments on independence are most common, there are few comments on other aspects of development. The focus on independence may partially be caused by frequent probes on this aspect of development in the interviews. However, the probe usually followed an open-ended question on psychological or developmental consequences of the sleeping arrangements. With very few exceptions, mothers were not very elaborate on these. For instance, Inger states: "I have not given this a single thought. I was about to say brain development?" She does not elaborate on this fairly general statement, however. Some felt that the sleeping place did not have long-term effects and that it was most important for the child to feel safe and for the parents to fulfill the infant's needs.

We would like to highlight two exceptions, Camilla² (27, 2 children) highlights emotion regulation when talking about nighttime sleeping places.

(...) if you take the night then it is a matter of quite a few hours, and if you are going to have them sleep alone then there will be a lot of screaming during the night where you have to go in and out, and that can maybe do something with basic emotion regulation, that it gets a little disturbed.

Another interesting aspect is raised by Dagrun. She explains that bedsharing can be an opportunity to strengthen the relationship between father and child who misses out on certain experiences mothers can have with the infants.

I believe that co-sleeping binds father and son, because mother and son have that... I mean, breastfeeding and the day in general together. Mother and son, or mother and child, have a different bond than father and child.

3.2.5. Coherence day and night

While initially mothers were not asked whether they perceived their sleeping routines during the day and the night as coherent, the question was introduced during a later phase in the study. Caregivers who were asked about the differences in daytime and nighttime sleeping practices did not perceive any conflicts. Siri for example explains:

There was of course differences. Because I put lots of clothes on them and put them in a sleeping bag outside (...) but I tried to be calm and I usually nursed them also when they were little. (...) so there was kind of similarities even though it's totally different situations.

Jorunn explained that in both cases the infant knows that she is present and sleeps alone for comparable amounts of time at day (outside in the stroller) and night (in the parents' bed).

They know I'm there when they fall asleep. In the evening, the kids fall asleep before, at least my kids, they fall asleep before me. Not everyone may do that, but they fall asleep before me. Eh, so they sleep for several hours alone before I go to bed, and those hours can be similar to daytime sleep.

3.2.6. Professional advice and generational changes

There were several questions addressing advice and generational changes, such as whether mothers had received any advice on their sleeping arrangements with their children. They were also asked whether they could recall what the sleeping arrangements had been when they were children. Even though Siri claims based on her experience with three children: "It feels like they have standardized everything they tell us", different mothers reported different advice they received and some of those who had children of different ages also reported changes over time.

A few mothers got the advice that the infants should sleep on their own at least from a certain age. For example, Siri said: "the public

health nurse's advice is always that you keep them in a separate room from I think they- from six months or eight months at least."

Other had received neutral advice in terms of sleeping places. For example, Camilla:

Interviewer: Had you read or heard anything, or received advice from someone you know about sleeping the night before you had children?

Camilla: Just like that in general from the public health nurse. From the midwife, before I had children. There it was twofold, then it was both how you could do it if the infant was to sleep alone, and how you could possibly do it if you were to have them in the same bed.

Dagrun reiterates important advice she received from a midwife:

From a midwife it was that you have to take things with a pinch of salt and just find out what is right yourself, because there is no right answer on how a child can work, how my child will be tolerating the world. That's the best tip I've got.

One mother also reported that she had received the advice to co-sleep which she did not heed.

Interviewer: Okay. So the information you have received from the public health nurse has been positive about co-sleeping?

Inger: Yes, really. But I have not calmed down completely about that, to be completely honest. But I've probably been a bit like stressed about it - in relation to crib death and things like that.

As for changes over time, the advice to let children sleep on their own, seems to be an older advice in several cases. For example, Hilde recalls:

(when) I got the oldest, the advice was that you should not carry them, and they should in a way learn to sleep by themselves. (Interviewer: Yes.) When I had the middle one, like five years later, the focus was more that you should be present, but they should learn to sleep by themselves. Eh, so this time I did not bother to ask, I just did what I have felt was right.

Astrid also reports that she got the advice to let the infant sleep alone when her first child was born. She describes how she got this advice from several sides and struggled with it, because her child would not sleep alone. She explains that reading about cultural variation in child rearing helped her feel secure about her choice even though they were criticized both by health care providers and family members.

We read a lot about different cultures and different ways of raising children when the eldest was born, and I think that made me very confident in my choices, that there are many different ways of doing things, and that there is not one answer sheet.

A tendency towards being (more) strict about letting infants sleep alone is commented on by several mothers who talk about attitudes held by the grandparent generation. Whether this is perceived as good advice or an area of conflict depends on the mother's own attitude. For example, Liv explains:

My mother told me "The dumbest thing to do is to somehow make the baby used to you being next to him all the time, until he falls asleep". And regardless of whether it was a piece of advice, it is something I agree with.

As mentioned above none of the mothers were in favor of letting the infants cry whereas the grandparents sometimes had a different attitude. Again Liv:

It is said that the grandparent generation is a bit like "Well the child can stand to scream". I have heard that, and I thought it was quite provocative in my case, the few times I might be away and they had to sleep over with my son if he cried then and I got some kind of advice, I felt that I was a little annoyed. Because we, who has such an easy child normally -(so he must) be allowed to make a sound when there is something insecure that is not the same- and then get advice on how our child should sleep when we know that he has no challenges with it, but now he is unsure because we are in a new place. Then I felt that it provokes a little, but I know that all those who come with such advice mean it well, based on their own experiences and how things were when they were younger. But I choose to believe that this screaming cure as you mention is a bit on the way out. I think that's how it was done before. So I do not think there are very many who would recommend doing it that way today.

Interestingly, even though it was still the predominant pattern, several mothers also mentioned that having the child sleep outside in a stroller was very, maybe more common in previous times. For instance, Liv explains: "I do not know if it has changed that much maybe, but I know it was very common to sleep outside when I was little." And Hilde describes the advice she received when her first child was born: "I was advised "to have them in the stroller, and to sleep in the stroller during the day" and all that." Hilde felt that this advice was not well aligned with her own instincts to keep the infant close and did not follow it with her current infant.

3.3. Discussion study 2

The majority of the mothers interviewed in our study practiced some form of outdoor sleeping at some point of time. We find many of the interviewees' explanations concerning daytime sleeping places in line with previous results from Finland (Tourula et al., 2013), particularly concerning fresh air and the love of nature that both Finnish and Norwegian mothers expressed. In contrast to Tourula and colleagues (2013), we found no indication that Norwegian mothers had any inclinations to "toughen" their children for the climate. They, like the Finnish mothers, showed some concern about low temperatures and wind, although they seemed more concerned about high temperatures and sun during the summer. They also expressed that outdoor sleeping was the cultural norm, something some of them had never even thought about. This seems to strengthen the assumption that letting infants sleep outside, often in strollers, is widespread and a norm in Nordic countries, and is probably motivated by similar values.

In addition, mothers in our study discussed some innovations such as carrying infants, which provides the infant with both fresh air and body contact, which may combine the priority of being close to the infant with that of being outside and getting fresh air. Though the topic of infants sleeping outside cafes is quite prominent in international media, it was not widely discussed or practiced by the mothers in our study, some of whom felt, it was not advisable.

All of the caregivers had slept in the same room as their children, the majority sharing a bed. They emphasized that sleeping together is practical in terms of caring for the infants' needs (e.g., breast feeding). They also emphasized that they can react more quickly to the child's signals (e.g., crying) and that sleeping together provides the infant with (emotional) security. They felt that by sleeping together the night was more restful for both infants and parents. Some reported that they had initially been concerned about the child's physical safety (SIDS). Some mothers decided to co-sleep despite advice they had received to have their infant sleep alone.

The caregivers who chose to let their babies sleep alone felt that this was the right place for the infant to sleep. They felt more comfortable without the infant in their bed and valued their privacy. Interestingly, these mothers were more frequently not from northern Norway, which we assume might be due to cultural or climatic differences. For instance, it is possible that keeping infants close during the long northern night, might have protected them from hypothermia in the past. However, knowing whether sleeping arrangements are traditionally different or whether this is a new development would be helpful in assessing these hypotheses. Swedish data suggests an increase of co-sleeping there (Wennergren et al., 2021). If the same pattern was found in northern Norway, this would weaken the climatic interpretation. Mothers in our interviews suggest that there are changes over time, at least as far as advice they receive is concerned.

None of the participants approved of letting an infant cry him-/herself to sleep. While letting the child cry has been described as part of a Western child rearing pattern (Maute & Perren, 2018), Norwegian mothers seem to deviate substantially from this. This might be related to a great respect mothers express for the individual differences between children and respecting the infants' choices. Respect for infants' choices seemed to be particularly prominent among currently co-sleeping mothers or those in which the child had different sleeping places from day to day or within the night. This result is in line with Keller & Goldberg's (2004) who found that co-sleeping mothers were more supportive of their children's autonomy.

Many mothers had no clear conception of developmental consequences of different sleeping places and they also did not feel that there was a contradiction between daytime and nighttime sleeping places, particularly because they felt their own behavior showed consistencies across situations. When probed for independence, the mothers' thoughts are in line with previous findings (Keller & Goldberg, 2004), namely that sleeping alone fosters sleep-related independence, but co-sleeping fosters other types of independence, for example related to playing or confidence.

4. Conclusion

We conclude that Norwegian sleeping practices are probably an expression of some overarching national values: being outside, no matter what the conditions (Nilsen, 2008), individual autonomy and independence (Hofstede et al., 2010), combined with values of social cohesion (Dragolov et al., 2016). We suspect that the strategy displayed by divergent daytime and nighttime sleeping patterns could foster this complex value pattern through complementary daytime and nighttime practices. Sleeping outside, usually in a stroller, during the day seems to be the predominant cultural norm. During the night different sleeping places are accepted, both in close contact with the parents and in a separate bed and room.

Sleeping outside during the day can be seen as a way of fostering self-regulation and independence and conveying an appreciation of nature. Some mothers have adapted the outside sleeping strategy to a closer pattern by carrying their children and thereby providing body contact. While some of the mothers start putting their children to sleep alone at night over the course of the first year, none of them practiced this during the first four months of the infants' life and many continue following co-sleeping or mixed strategies throughout the preschool years. Most of the mothers felt that developing independence was an important aspect of their children's development, however, they disagreed over how to reach this goal. This division is a reflection of the scientific literature that is also somewhat inconsistent with regard to this topic, the safest conclusion possibly being that different sleeping places lead to domain-specific developments. However, none of the mothers agreed with letting infants cry themselves to sleep and instead emphasized the infants' need for security, individuality and right to decide for themselves. Although future research is needed to establish any causal or longitudinal connections between values, sleeping places and child development, the Norwegian infant sleep practices seem to be well-adjusted to the cultural values that, like the sleeping practices themselves, can seem contradictory.

Author statement

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Declaration of Competing Interest

The authors declare no competing interests.

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