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Caring for twins during infancy: A systematic review of the literature on sleeping and feeding practices amongst parents of twins

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Abstract

Objective: to better investigate how parents of twin approach caring for their infants in terms of feeding and sleeping practices following birth, exploring sleeping and feeding behaviour used by parents with twin babies.

Methods: Three electronic databases (PubMed, PsycINFO and ScienceDirect) were explored and studies published between 2006–2016 were included. Preferred Reporting Item for Systematic Reviews and Meta-analysis (Moher et al., 2015) was adopted. Key results were extracted and synthesised.

Results: Fourteen studies were included (3 studies focused on sleeping, 7 studies focused on feeding and 4 studies focused on sleeping but considered feeding as a secondary theme).

Conclusion: caring for twin babies is a unique challenge which involves peculiar choices. Parents of twins may benefit from additional and specifically designed advices from health professionals in considering and implementing effective sleeping and feeding care practices that may reduce parental fatigue and stress and may promote parent-twin relationship.

Keywords: twin; parenting; baby care; co-sleeping; breastfeeding; systematic review

1. Introduction

During the first months of infants' lives parents face a period of intense caregiving in which they must respond to their infant's need (Bornstein, 2002; Small, 1999; Winstanley & Gattis, 2013). Different studies of parenting during infancy have examined how parents respond to specific infant needs and have explored specific caregiving behavior and practices, such as breastfeeding and bed-sharing, and their effects on infant health (Thompson et al., 2009; Hughes et al., 2012; Hughes et al., 2005; Sadeh, 2004; Blair et al., 2010; Santos et al., 2009). However, it is important to point out that common recommendations and guidelines that are usually and normally followed when parents have to take care of a single baby, may present particular challenges and difficulties in the case of parents of twins. In fact, although there are similarities to singleton parenthood, the experience of parenting twins is undeniably different (Leonard & Denton, 2006). Parenting and caring for two infants simultaneously challenges many parents in attending to all caregiving needs of their twins (Damato, 2005). Moreover, also common recommendations and guidelines that are usually and normally followed when parents have to take care of a single baby, may present particular challenges and difficulties in the case of parents of twins. For example, the World Health Organization (2003) recommends the exclusive breastfeeding for at least 6 months after birth, however some mothers of twins find their experience of breastfeed two children simultaneously stressful and fraught with ongoing challenges and problems. Therefore, it is necessary to meet parents need to be informed of the benefits of breastfeeding twins, the logistics of feeding two or more infants and the education and support resources available for them. In the same way also the demands of early parenthood and their impact on the ability to obtain rest and sleep are exponentially increased for parents of twins: parents may seek the guidance of health professionals regarding sleeping arrangements of healthy twin babies. In fact, the presumed benefits of twins bed-sharing are based upon the argument that twins are able to support one another via co-regulation because

of their common intrauterine experiences (Nyqvist and Lutes, 1998), on the other hand, concerns about twin babies bed-sharing reflect some of the issues raised in Sudden infant death syndrome (SIDS) reduction guidelines, such as suffocation and overheating (DoH, 2005). Thus, it is possible to say that the unique aspects of twin births may influence parents' decisions and behaviour. Nowadays, there are numerous online forums for parents of twins (e.g. twiniversity.com) where it is pointed out that having two new babies at the same time is a huge adjustment for parents and where mothers and fathers of twins constantly ask for advice on how to take care of their twins properly.

Starting from these considerations, we believed that parents of twins need much more systematic and specific support and guidance, which may include advice on nutritional and sleeping care practice, however, research on how to face the unique characteristics and challenges for parents of twins are still scarce. In addition to this gap in research field, also health care practitioners that have to deal with this type of pregnancies need to better understand the special needs of parents of twins. Therefore, we believed that a specific focus on the unique experience of parenting twins was necessary and particularly important since the demand for information about how to take care of twins will continue to increase (Bowers, 1998). To design educational strategies and supportive intervention specifically targeted for this population, firstly we need to determine how these infants are cared for, starting from sleeping and feeding practices. The purpose of this work is to review the published literature on how parents of twin approach caring for their newborns in terms of feeding and sleeping practices following pregnancies. In particular, in the present paper, we report a SR of studies on caring for newborn twins during the first period after pregnancy, as an established method to integrate existing literature on a topic related to health care research and practice. Our aim is to provide the first systematic review of the research literature on the experience of parenting twins. More precisely, we are interested in exploring sleeping and feeding behaviour used by parents with

twin babies systematically reviewing the actual state of knowledge in order to guide future research that can help health practitioners for supporting parents in addressing sleep and feed issues with their twins.

2. Method

The Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) guidelines (Moher et al., 2015) was adopted for the purposes of the present SR. A computer-based literature search was conducted on studies published between 2006 and 2016 on the following database: PubMed, PsycINFO and ScienceDirect. To describe the research, the following topics were defined: “twins”, “twin” and “parenting”, “infant crying”, “feeding”, “sleeping”. In particular, Title/ abstract search string was: Twins OR twin AND (parenting AND feeding OR sleeping). In addition, a manual search of the reference lists of relevant publication was carried out in order to identify further eligible papers.

PRISMA procedural steps adopted are reported in Fig. 1, together with records count, duplicates, step-by-step criteria-guided screening and records obtained after each screening. Records were considered eligible if papers were published between 2006 and 2020 in peer-reviewed, indexed scientific journals and written in English. No previous reviews were found. Six study was inserted after a manual search conducted after the reading of the initial set of eligible articles. Assessment of eligibility for inclusion was initially conducted by EM and ML and subsequently it was discussed together in order to reach a final decision. We identified a total of 14 paper that met the inclusion criteria.

INSERT Figure 1 ABOUT HERE

The analyses of the study consisted in aggregation and synthesis from the main findings of the selected studies. Firstly, studies were classified with respect to the parenting care domain examined in the papers: sleeping, feeding or both. Secondly, the main results arising from separate papers were aggregated into common and broader categories. According to PRISMA

guidelines and to control for bias, both authors independently conducted analysis of results, resolving disagreement through consensus.

3. Results

The analysis of the 14 selected studies showed that 3 studies are focused only on sleeping, while 7 study focused on feeding; the remaining 4 studies focus mainly on sleeping but consider feeding as a secondary related theme. Studies are summarized in Table 1.

INSERT Table 1 ABOUT HERE

3.1 Sleeping

Two relevant issues with regard to sleeping domain emerged: the description of safe sleep infant care practices related to SIDS-risk reduction guidelines and suggestions for pros and cons of bed-sharing and separate sleeping arrangements.

As regard the description of safe sleep infant care practices related to SIDS-risk reduction guidelines, in two of the selected studies, it was underlined that this topic is particularly relevant for parents of twin babies since the risk of SIDS in twins may be greater due to the higher prevalence in twins of prematurity and low birth weight, factors that have been shown to increase the risk of SIDS (Damato et al., 2016; Hutchinson et al., 2010).

Recommendations to decrease risk for SIDS provided by the American Academy of Pediatrics (2011) stress the importance of keeping infants in their parents' room for night-time sleep for the first six months of life. The study pointed out that this is a common practice among parents of twins in different country. The study by Ball (2006), conducted in Britain, reported frequency of room sharing with the parents at 77% during the first month and 68% during the third month. Hutchison et al. (2010) reported frequencies of 45% at 6 weeks and 34% at 4 months for room sharing for the New Zealand sample. Room sharing with a parent rates were also measured in the United States context: Damato et al. (2012) found frequencies of 55% at 9 weeks and 48% at 12 weeks. Findings from Damato et al. (2016), with regard to room sharing,

were within the same ranges as previous investigations, particularly when compared with the study of Damato and Zupancic (2009).

From our analysis it emerged that SIDS-reduction guidelines also include placing infants' supine for sleeping. Two of the studies showed that this is a common practice for parents of twins, in particular Hutchison et al. (2010) reported that between 76% and 86% of mothers in New Zealand usually placed their twins' supine for sleep. Damato et al. (2016) found that all mothers tested reported putting both babies' supine for all night-time sleeps and all naps 6-week post-partum. Additionally, Academic Pediatric Association (APA) guidelines (2011) suggested avoiding sharing sleep surface with another child. This is a relevant issue emerged in all of the studies and for this reason it is necessary to focus specifically on parents' choice of make their twin babies sleeping together or apart.

Moreover, another relevant issue that emerged from our systematic review regards suggestions for pros and cons of bed-sharing and separate sleeping arrangements. In one study it emerged that those parents that prefer bed-sharing believe that their twins prefer to stay together, slept better, had more synchronous sleep, and proved easier to care for, on the contrary parents' concerns about co-bedding reflect some of the issues raised in SIDS guidelines, that discourage to share sleep surface with another baby since babies could suffocate and overheat (DoH, 2005; Ball, 2007). Two of the studies included showed that sleeping twins together in the same cot was a popular practice in different countries. In particular, Hutchison et al. (2010) founded that Auckland families preferred co-bedding at 6 weeks of age than any other sleeping arrangement. Also Ball (2007) founded that 60% of twins shared a cot at 1 month. Moreover, two of the eight studies that we analysed try to provide empirical data to explain whether sleeping together is a risk factor for twins or if it favours twin babies' sleep. Ball (2007) underlined that commonly explanations against co-bedding as babies sharing a cot disturb one another and may overheat or suffocate one another, were not supported by the data. On the

contrary, evidence that support co-bedding were found. Twins who normally sleep together are attuned to one another's presence in a way that is not exhibited by separately sleeping babies. The high proportion of the night that some co-bedded pairs spent in close physical contact, combined with the reduction in synchrony when separated explained parents' perceptions that their babies prefer sleeping together and that co-bedded twins are easier to care for. Also Hayward et al. (2015) examined the effect of bed-sharing on twin co-regulation and safety, showing that *"the duration of quiet sleep increased (...) for co-bedded twins, whereas twins receiving standard care decreased the amount of time in quiet sleep"*. Moreover, co-bedded twins spent more time in the same states and showed higher degree of physiological stability and regulatory behaviours when compared to non-co-bedding twins. Indeed, twins who were co-bedded also spent less time in opposite states, were in quiet sleep more often, and cried less than twins who were cared for in separate cots. Finally, Ball (2006) pointed out that *"co-sleeping twins were less likely to be moved from their parents' room than infants who were slept apart"*. Starting from this evidence the author underlined that *"an important message that both hospital and community midwives could therefore convey to the parents of twin infants is that co-bedding facilitates keeping twin infants in the parents' room at night, thereby complying with SIDS-risk reduction guidance"*.

3.2 Feeding

Three relevant issues with regard to feeding domain emerged: the duration of breastfeeding, the unique challenge of breastfeeding twins related to risk and protective factors for cessation or continuation of breastfeeding and the association between feeding and sleeping practice.

Regarding the duration of breastfeeding, in both of the studies included that focused exclusively on feeding and also in three of the studies included in which feeding is considered

as a related theme the issue of duration of breastfeeding during the postpartum period emerged. The findings from Östlund and colleagues (2009) show that in Sweden *"a high percentage of mothers of twin initiate breastfeeding and about 80% of all twins were breastfed at 2 months"*. However, *"despite this high rate of breastfeeding during the first months, a large number twins were weaned before 6 months"*. In Cinar et al. (2013) is reported that the rate of exclusively breast milk feedings of twins ranged from one day and five months in Turkey. In the following study of Cinar et al. (2016), although the rate of twins breastfeeding was high at the outset, very few babies continued to be breastfed after three or four months.

Frequency of exclusive breast milk feedings in Damato et al. (2016) was about 40% at 2 months, and this percentage of twins receiving breast milk decreased over time. This study had similar findings to that reported by Hutchison et al.'s New Zealand sample (2010). Differently from all this findings Ball (2006) underlined disappointing to note that only 20% of twin infants in were exclusively breastfed in the first month, dropping to 8% (four pairs) in the third month in her UK sample. Also, in the study of Kim et al. (2016), the lowest breastfeeding's rate was identified among twins compared to singletons babies. In their study, they found how twins who received early skin-to-skin contact had an increased probability of breastfeeding throughout the hospital stay than those who did not. Further, also rooming-in was associated with a greater (although not statistically significant) likelihood of breastfeeding among twins throughout the hospital stay.

Another relevant finding associated to feeding practice is that breastfeeding twins could be a unique challenge. In both of the studies that focused exclusively on feeding emerged that breastfeeding twins is a difficult and stressful experience for mothers. Cinar et al. (2013) found that *"all mothers experienced burden and difficulties in coping"* and feel themselves alone and helpless, experiencing difficulties and lack of support by healthcare professionals in dealing with the challenge of breastfeeding their twins. Moreover, another concern that makes

breastfeeding twins particularly challenging is that mothers are worried that their milk would not be enough for their babies. Also Östlund et al. (2009) underlined that mothers of twin infants may experience breastfeeding as time-consuming and stressful. Moreover, in this study possible risk factors related to the early cessation of breastfeeding twins were analyzed. In particular, maternal factors, such as lower educational level, smoking younger age and being first time mother, and infant factor, as prematurity, were related to cessation of breastfeeding before 6 months of age. On the contrary father and practitioners' support from a psychological and practical point of view as high self-esteem in mothers facilitate long breastfeeding duration in twins. Similar results were obtained in the study of Mikami et al. (2018) which highlighted several factors connected to weaning such as nonexclusive breastfeeding, lack of support, difficulty breastfeeding, a duration shorter than 12 months in previous pregnancies and infant's weight under 2.300g.

On the contrary, Anjarwati et al. (2019), in a study conducted in East Java, described the factors associated with successful breastfeeding. They identified three main factors: breastfeeding self-efficacy, mothers' desire to provide exclusive breastfeeding, and healthcare workers' support. Also, in the study of Tahiru et al. (2020), exclusive breastfeeding was associated with confidence to produce enough breast milk to satisfy the children for the first six months of life.

Finally, further relevant issue that emerged in two of the studies that focus mainly on sleeping but consider feeding as a secondary related theme is the relation between feeding and sleeping practice. Ball (2006; 2007) underlined that since co-bedded babies are more likely to remain in their parents' room for longer, mothers are more ease in taking care for their twins, particularly for breastfeeding. Moreover, the author showed a relation between co-bedding twins and synchrony of night-time feeds in the first month post-partum.

4. Discussion

Sleeping and feeding practice require special consideration in the case of parenting

twins. In fact, it was observed that advices and programs for parents of singletons are usually not suitable for parents that have to caring for twins. Results from the present systematic review underlined that the implementation of a specific support for parents of twins during pregnancy, in hospitals and in the early post-partum period may be very useful to help parents to find effective strategies to care for their newborn twins. Parents of twins experience unique challenges and for this reason it is important to have a clearer idea regarding sleeping and feeding behaviours for twin infants to guide parents in their choices (Ball, 2006).

Safe sleep infant care practices related to SIDS-risk reduction guidelines need to be well known by parents of twins. In fact, twin babies are preterm with low birth weight very often and these factors has proved to increase the risk of SIDS (Damato et al., 2016; Hutchinson et al., 2010). Our findings suggested that parents of twins use to keep their infants in their room for night-time sleep for the first six months of life and to place them supine as suggested by the American Academy of Pediatrics (2011) so it is possible to promote this common practices that is usually and easily followed by parents of twins. On the other hand, despite SIDS-risk reduction guidance discouraged co-bedding, our results suggested that this sleeping practice is effective and also safety with twin babies. In fact, co-bedding facilitates keeping twin in the parents' room at night, facilitate parents to get the babies on the same feeding and sleeping schedule and favours quiet sleep as well as twins' regulatory behaviours and physiological stability. It has been also underlined that co-bedding may help mothers to continue breastfeed their twins for a longer periods and, consequently, it facilitates mothers in taking care for both babies. Thus, an essential advice for parents of twins is that bed-sharing is a safe practice in the case of twins that have several advantages for both twins and their parents.

Results from the present review also indicated that, despite the World Health Organization recommends to continue exclusive breastfeeding for at least 6 months, early cessation of breastfeeding in mother of twins is very common because they generally experience fatigue and

exhaustion in breastfeeding their babies. Early cessation of breastfeeding could be avoided with an effective prenatal preparation. In particular, in order to promote and facilitate breastfeeding in mothers of twins it will be important to invest on mothers' practical and psychological support starting from the antenatal period. Moreover, having in mind which factors may lead twin mothers to stop breastfeeding earlier could be particularly useful in promoting longer-term breastfeeding in at-risk mothers. Our findings suggest that the mothers more at risk are young and primiparous mothers, that have a low educational level and that used to smoke. Also mothers of preterm twins used to cease breastfeeding earlier than mothers of term twins. Having these risk factors in mind could be useful in identifying at an early stage mothers who will need more support in the postpartum period.

The present work has also allowed to identify the protective factors that favour breastfeeding in mothers of the twins: some were related to maternal desires and perceptions (i.e., breastfeeding self-efficacy, mothers' desire to provide exclusive breastfeeding), some were related to family aspects (i.e. partners' support), and some were related to the quality of experience in health care services in the postpartum period (healthcare workers' support, early initiation of skin-to-skin practice and mothers' possibility of rooming-in during twins hospital stay).

As suggested in Anjarwati et al. (2019), it is important to consider individual variables such as mother's representation and self-efficacy concerning breastfeeding. In their study they demonstrated how, although mothers were well-educated and had no breastfeeding experience beforehand, the lack of high self-efficacy in breastfeeding still hindered their breastfeeding success. Self-efficacy in breastfeeding after pregnancy is therefore recommended for the success of exclusive breastfeeding (Sukmawati & Rachmawati, 2017).

The self-efficacy of breastfeeding may also be influenced by a mother's strong desire to provide exclusive breastfeeding.

Moreover, it was observed that fathers play an important role in supporting and encouraging mother to breastfeed. Thus, health care practitioners that work with parents of twin should support mothers to continue this practice, not only presenting the benefits of breastfeeding and suggesting the best strategies for breastfeeding two children simultaneously, but also involving and supporting their partner

Finally, an important role is played by health care workers. In the study of Tahiru et al. (2020), health professionals, according to the mothers, gave them different health messages on why they should practice exclusive breastfeeding despite the fact that they have twins.

During child welfare sessions, mothers had similar health messages for most portions of the interview. These messages focused on why mothers should breastfeed their kids exclusively.

For example on the question "What were you told during breastfeeding promotion sessions?"

A mother said, *"The nurse said I should have lots of fluid to drink."* Another mother also said that *"the nurse said it was my children's best and most hygienic food."*

A recommendation for future interventions could be a more family centered approach for the support of mothers.

In general, the present systematic review further highlighted that caring for twin babies is a unique challenge for parents. Our results pointed out that it is necessary implementing both research in this field that can guide the implementation of specific support for parents of twins from health professionals in order to help mother and fathers in dealing with twins in the postpartum period and, consequently, for implementing effective sleeping and feeding care practices.

These advices should be specifically designed for parents of twins on issues such as safe and unsafe ways of co-bedding, and the pros and cons of interrupt breastfeeding before 6 months of life. Cinar et al. (2016), for example, found that despite the high number of mothers trained to feed babies, 50% of the mothers gave incorrect answers to the questions concerning

feeding. Some mothers said they had no idea, highlighting how the mothers were supposed to have been educated on the subject. Indeed, in the care and breastfeeding of twins, mothers can often experience embarrassment, and these mothers need a supportive environment to answer their latching and other breastfeeding questions. Setting up systems to allow these mothers to relax and recover while supporting their ability to breastfeed their infants would also be helpful (Kim et al., 2016).

However, it is important to pointed out that this is only a first attempt to give a comprehensive framework of parenting and caring twins. Despite some relevant issues were found, it is important to consider the results of this review with caution because of the presence of some limitations. The methodologies used in the different studies are very heterogeneous and the sample sizes used in the studies were very different and this does not allow comparing in depth the results of different studies through a meta-analysis. Additionally, another limitation of the study is the lack of heterogeneous and systematic ethnic diversity among parents enrolled in the selected studies. Cultural differences might set relevant and informative differences about the choices of parents in caring for their twins and future research should better investigate this issue (Bornstein, 2012).

In summary, our results confirmed that in the early weeks after delivery, parents of twins have to deal with different challenges that include the concerns related to manage and care for two babies at the same time. In particular, it was observed that parents are usually confused and worried about caring for more than one infant especially because common recommendations and guidelines that are usually and normally followed when parents have to take care of a single baby, may be particularly challenges in the case of parents of twins. Without proper support and specific advice for dealing with two babies at the same parents might consumes a great amount of energy and, consequently, they have less time to spend in non-caregiving interactions with their infants. It was observed that twins spend more time alone, interacting each other and

spending less time relating with their parent than a singleton baby (Thorpe, 2006). This may contribute to generate a non-optimal caregiving environments for twins and may interfere with twin's social, emotional and neuropsychological development during infancy (Belsky et al., 1998; Bennett et al., 2002; Keenan & Wakschlag, 2000; Rubin et al., 2003). Therefore, it would be important to further implement research to better understand the peculiarities of the twins' parenting and care to implement shared advices and programs for parents of twins.

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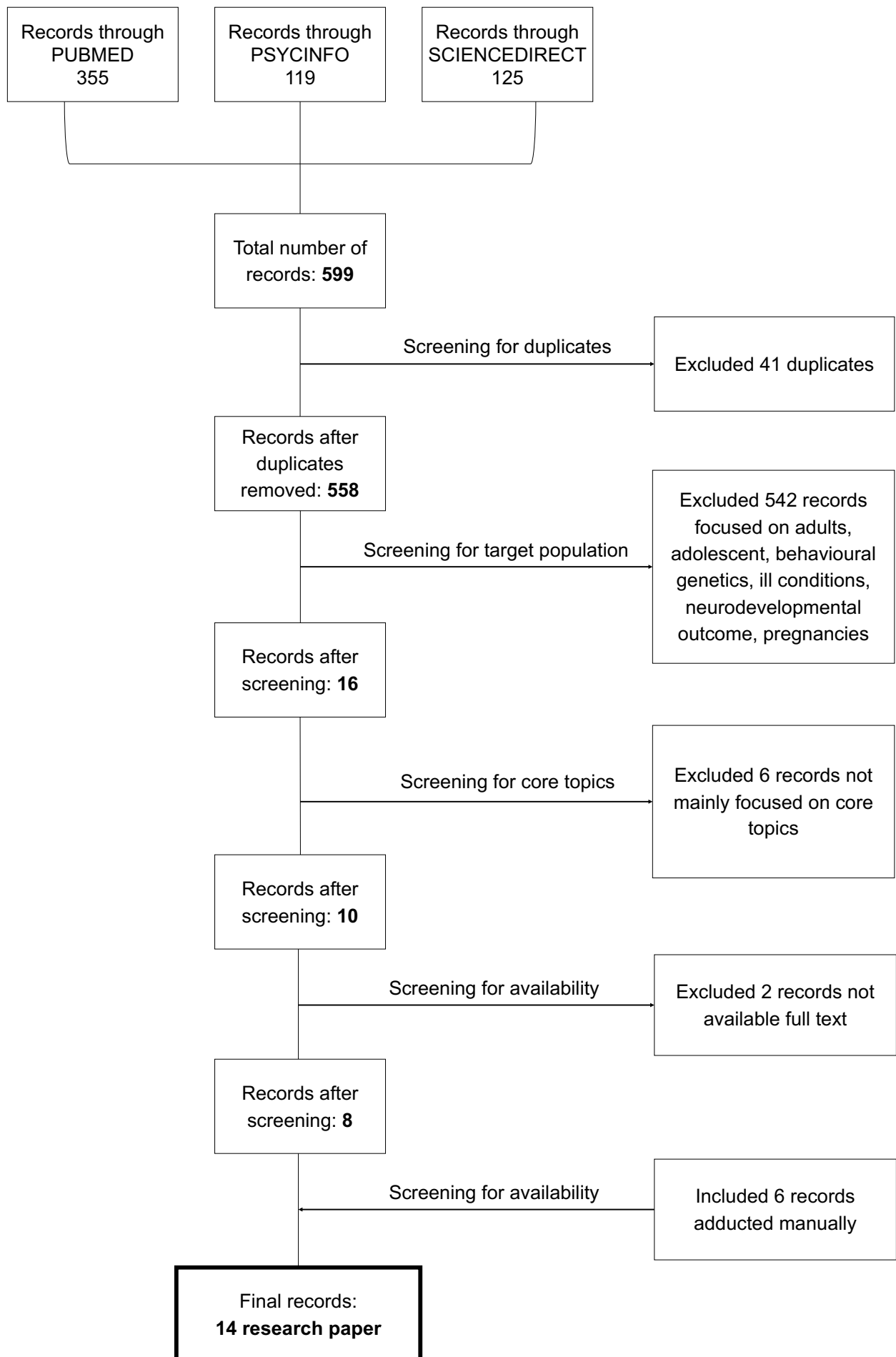
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Running head: CARING FOR TWINS DURING INFANCY

Table 1

Synthetic characteristics of the studies included in the systematic review

N	Authors (Country)	Year	Methods	Participants	Twin age	Caring practice domain	Key findings
1	Ball (UK)	2006	Semi-structured telephone interviews (1) videotape monitoring of sleep behaviour at home;	60 mothers (33.9 years) and 60 fathers (36.7 years)	Mean age at initial contact: 19.25days	sleeping and feeding	At one month of age, 60% of parents used to sleep their twins together. Co-bedded twins were less likely to be moved from their parents' room than those who slept apart and facilitates synchrony of night-time feeds.
2	Ball (UK)	2007	(2) behavioural and psychological monitoring of sleep in a sleep lab	24 twin baby pairs	Range of the twins age was 1-3 months	sleeping and feeding	Co-bedding twins is a safe practice (no one of the side by side babies were physically compressed or "rolled-on" by a co-twin and no differences were found as regard core temperature or head covering). Co-bedding also facilitates synchronous sleep states.
3	Damato & Zupancic (USA)	2009	structured audiotape telephone interviews	8 mothers (31.6 years SD = 3.3) and 7 fathers (32.0 years SD = 3.8) of twins had twins born at ≥ 33 weeks of gestation.	15.1 months (SD = 2.3, range = 11–18 months)	sleeping	Most of the strategies reported are similar to those recommended as guidelines for parents. Parents did not agree on their effectiveness during the early postpartum months. parents felt that getting the twins on the same feeding and sleeping schedule was eventually effective.
4	Östlund, Nordström,	2009	etrospective analysis of breast-feeding	1.657 twins	2, 4, 6, 9, and 12 months of twins' postnatal age	feeding	Breastfeeding frequencies in twins decreased from 84% at 2 months to 6% at 12 months. Mothers at risk of early cessation of

Running head: CARING FOR TWINS DURING INFANCY

	Dykes & Flacking (Sweden)		data from a population-based cohort				breastfeeding (before 6 months): had a lower educational level; smoked at first antenatal care visit were mothers of preterm infants; were < 23 years old; were primiparous..
5	Hutchison, Stewart & Mitchell (New Zealand)	2010	postal questionnaire	109 mothers.	Time 1: 1.5 months Time 2: 4 months Time 3: 8 months (Chronologic age)	sleeping and feeding	As regard SIDS guidelines only 45% of parents at 6 weeks and only 34% of parents at 4 months share the room with their twins, while a higher percentage of parents (between 76% and 86%) placed their twins' supine for sleep. Parents preferred co-bedding twins at 6 weeks of age than any other sleeping arrangement.
6	Damato, Brubaker & Burant (USA)	2012		90 mother/father pairs plus 14 unpatented mothers (104 families with twins) had twins born at ≥ 33 weeks of gestation.	Chronologic age (days), mean (SD) Time 1: 28.77 (10.44) Time 2: 64.57 (6.78) Time 3: 91.69 (7.38)	sleeping	Many families of twins did not follow the recommended safe sleeping practices to reduce SIDS risk. A high percentage of parents use to co-bedding their twins while a low percentage of parents practice room sharing with their twins.
7	Cinar, Alvur, Kose & Nemut (Turkey)	2013	qualitative narrative interview	10 mothers of twins (age range 21-34)	Range of the twins age was 2-24 months	feeding	Mathers' perception of breastfeeding: (1) long duration of breastfeeding; (2) exhaustion; (3) having no social support; (4) poor sucking; (5) lack of information. Twins who were co-bedded spent more time in the same state, less time in opposite states, were more often in quiet sleep and cried less than twins who were cared for in separate cots. Co-bedding promotes self-regulation and sleep and decreases crying without apparent increased risk.
8	Hayward et al. (Canada)	2015	Randomized controlled trial (RCT)	117 sets ($N = 234$) of stable preterm twins (<37 weeks gestational age at birth) admitted to the NICU	not specified	sleeping	The degree of adherence to AAP recommendations varied over time. Mothers of twins reported 100% adherence to placing twins supine for sleep initially, but many reported putting babies on their stomachs for naps as twins became older. Sharing a parent's bedroom
9	Damato, Haas, Czeck, Dowling & Barsman (USA)	2016	Online survey	35 mothers of twins (32.8 years SD = 3.97)	Twins' mean age at each data collection: (1) 6.2 weeks (2) 11.2 weeks (3) 18.2 weeks (4) 25.9 weeks	sleeping and feeding	

10	Cinar et al. (Turkey)	2016	Face-to-face and phone interviews	30 mothers of twins (age range 19-38)	Not specified	Feeding	<p>decreased over time as did frequency of crib sharing.</p> <p>Exclusively breast milk feedings ranged from 39% at 6 weeks to 41% at 11 week, then remained stable at 31% The percentage of twins receiving breast milk decreased over time.</p> <p>The number of twin babies who only breastfed during the first six months of life was found to be low.</p> <p>A mother's breast milk for multiple babies is sufficient, according to the literature.</p> <p>Mothers expecting twin babies should be informed and encouraged to breastfeed by pointing out the advantages of breastfeeding.</p> <p>Among twins, not feeding before the first breastfeeding and an earlier starting time for the first breastfeeding were associated with a higher probability of breastfeeding throughout the hospital stay.</p>
11	Kim (Korea)	2017	Phone survey	241 mothers of singletons and 125 mothers of twins.	Not specified	Feeding	
12	Mikami et al. (Brazil)	2018	Personal interviews at three post- natal points: 30 to 40 days (Time 1), 90 days (Time 2), and 180 days (Time 3).	128 mothers and their babies	Not specified	Feeding	<p>Breastfeeding's weaning was associated with nonexclusive breastfeeding, lack of support during lactation period, infant's birth weight, insufficient human milk, infant's behaviour and work.</p>
13	Anjarwati et al. (Indonesia)	2019	Postal questionnaire	184 mothers and their twin babies	Range of the twins age was 6-23 months	Feeding	<p>A high level of self-efficacy in breastfeeding can increase the confidence of women in order to provide exclusive breastfeeding.</p>

14	Tahiru et al. (Ghana)	2019	Semi-structured questionnaire	185 women and their twins	Twins around 6-23 months	Feeding	For six months, only 17 %of twin infants were breastfed exclusively. Women who were not confident that they could produce sufficient breast milk were about 83% less likely than those who were confident that they could produce sufficient breast milk to practice exclusive breast-feeding. The most important factors influencing exclusive twin breastfeeding were confidence in the production of sufficient breast milk and admission of children to the NICU.
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