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Adolescent Mothers and Kangaroo Mother Care: A Scoping Review

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Thesis Summary

Kangaroo mother care (KMC), the practice in which mothers hold their infants skin-to-skin against their bare chest, can increase bonding and attachment between mothers and their infants. However, there is not much research on the benefits of KMC within the adolescent or teen mother population (13-19 years old). The purpose of this scoping review was to identify how common KMC is within the teen mother population, determine how KMC varies based on social determinants of health and race/ethnicity within the adolescent mother population, and how KMC impacts adolescent mothers' maternal attachment and bonding with their infants. PubMed and CINAHL databases were searched. Of the 889 titles were reviewed for eligibility, seven articles were included in the results for this study. There was no explicit data on the prevalence of KMC within this population. Findings reveal that factors such as low socioeconomic status may lead to lower levels of attachment. Few implications were found on race/ethnicity's impact on KMC and bonding, but individuals of minority race do have lower breastfeeding rates. Overall, further research is needed to understand the true differences between KMC in the adolescent mother population and the non-adolescent mother population.

Abstract

Kangaroo mother care (KMC), the practice in which mothers hold their infant against their bare chest, has many physiological benefits and can increase bonding and attachment between mothers and their infants. In the adolescent mother population (13-19 years old), KMC seems to be understudied as a method of increasing maternal attachment with infants. The purpose of this scoping review was to identify the prevalence of KMC among the adolescent mother population, determine how KMC varies based on social determinants of health and race/ethnicity within the adolescent mother population, and how KMC impacts adolescent

mothers' maternal attachment and bonding with their infants. PubMed and CINAHL databases were searched. Of the 889 articles retrieved after duplicates were removed, 7 were included for study synthesis. No explicit prevalence data were found. Findings reveal that while age does not directly hinder mothers' ability to form attachment, indirect factors such as low socioeconomic status may lead to lower levels of attachment. Few implications were found on race/ethnicity's impact on KMC and bonding, but individuals of minority race do have lower breastfeeding rates. Overall, further research is needed to understand the extent of the differences between KMC in the adolescent mother population and the non-adolescent mother population.

Introduction

Kangaroo mother care (KMC) is the practice in which mothers hold their naked infant against their bare chest (Charpak et al., 2005). The practice is typically performed immediately after birth and in the weeks and months following birth. This practice can have many benefits for both preterm and full-term infants, including physiological benefits, such as thermal protection for the infant, as well as increased bonding and attachment between the mother and the infant (Charpak et al., 2005).

The literature indicates that there is a period shortly after birth that is critical to establishing an affectionate relationship between mothers and infants (De Chateau & Wiberg, 1977a, 1977b; Hales et al., 1977; Kennell & Klaus, 1979; Klaus et al., 1972; Klaus & Kennell, 1976). Engaging in KMC during this time significantly contributes to mother-baby bonding (Cho et al., 2016). This is largely due to the increased levels of oxytocin, the "love hormone," that KMC stimulates in both mothers and infants (Feldman et al., 2010; Uvnäs-Moberg, 1998). Oxytocin leads to greater bonding and attachment between mothers and infants due to stimulating increased sociability and trust (Bigelow & Power, 2012; Carfoot et al., 2005;

Henderson, 2011). The benefits of KMC are not limited to the short term, however. De Chateau and Wiberg (1984) found that when infants reach one year of age, mothers who had engaged in KMC were more likely to frequently hold and touch their infants as well as talk more positively towards them. Further, Williams & Turner (2020) found that mothers engaging in more affectionate touch with their infants when feeding them at three months led to the infant being more securely attached at one year of age.

Adolescent mothers (mothers between the ages of 13-19) make up 13% of births in the United States (Leftwich & Alves, 2017). Of these adolescent pregnancies, 80% are unintended (Leftwich & Alves, 2017). Furthermore, repeat pregnancy is common among adolescent mothers. Adolescent mothers face many disparities that older mothers do not frequently endure. When comparing adolescent mothers to older mothers, adolescents typically deal with more stress, psychological difficulties, poverty, and lower self-esteem (Leftwich & Alves, 2017). In regards to poverty, two-thirds of adolescent mothers live in poverty, and they disproportionately experience adverse health outcomes (Ng & Kaye, 2012).

In addition to being more likely to deal with poverty and adverse health outcomes, adolescent mothers often lack knowledge regarding caring for their infants. This may leave them less confident in their perceived ability to provide adequate care (Ruchala & James, 1997). According to Çinar and colleagues (2014), confidence is essential to adapting to motherhood and providing care, and low self-confidence can negatively impact attachment. Furthermore, adolescent mothers have lower rates of breastfeeding exclusivity and duration (SmithBattle et al., 2020).

There is conflicting evidence in the literature regarding the level and quality of attachment between adolescent mothers and their infants. According to several studies,

adolescent mothers are more likely to have insecure attachments with their infants; younger age, lower socioeconomic status, and tendency for pregnancy to be unplanned in adolescent mothers left them more likely to be subject to insecure attachment (Kurt et al., 2020; van Ijzendoorn et al., 1999). Furthermore, 57% of infants of adolescent mothers have insecure attachment compared to 40% of infants of adult mothers (Andreassen & West, 2007). Not having a secure attachment can be detrimental to infants, as they may undergo emotional, social, physical, mental, and language development issues (Caye et al., 1992; Müller, 1996; Tilokskulchai et al., 2002). Conversely, several research teams found that adolescent mothers have the same level or better attachment with their infants than adult mothers (Damato, 2004; Resta et al., 2010; Yilmaz & Kizilkaya, 2010; Zehra & Rukiye, 2020).

Race, ethnicity, and social determinants of health also have some effects on crucial motherhood experiences, such as whether a mother elects to breastfeed her infant, which may pose implications for KMC in these populations. African American, Hispanic, and rural-dwelling mothers are less likely to breastfeed their infants (Linares et al., 2017; Munn et al., 2018). Furthermore, African American mothers and rural dwelling mothers are also less likely to participate in Baby-Friendly Practices (e.g., supplementation, rooming-in, and skin-to-skin care) when compared to other groups, while mothers who had lactation consultations and who had performed KMC were more likely to participate (Munn et al., 2018). These findings imply that KMC rates may be even lower in adolescent mothers who are part of disparate populations.

Therefore, the purpose of this scoping review was to identify the prevalence of KMC among the adolescent mother population, determine how KMC varies based on social determinants of health and race/ethnicity within the adolescent mother population, and how KMC impacts adolescent mothers' maternal attachment and bonding with their infants. These

findings can be used to design interventional studies which may improve maternal and infant outcomes, through the use of KMC.

Methods

PubMed and CINAHL databases were used to search for articles using the key words, “kangaroo care,” “adolescent mothers,” “bonding,” “race/ethnicity”, and “social determinants of health” by searching with words combined and separately. See Table 1 for key words and search strategy. Within the CINAHL database, the 2015-2020 filter was applied. Within the PubMed database, the 2015-2020 and the English filter were applied. Upon the initial search, 236 results were yielded in CINAHL, and 824 results were yielded in PubMed for a combined total of 1060 articles yielded. These results were imported into EndNote, and after 171 duplicates were removed, 889 titles remained to be screened for relevance. Following the title screening, 40 abstracts were screened, and 19 were excluded. Of the 21 full-text articles screened for eligibility, 14 were excluded for the following reasons: only describing the study protocol with no results (1), offering little valuable information on bonding (1), only discussing the validity of a model (2), and not being applicable to adolescent mothers (10). A final selection of six full-text articles were kept for inclusion in the scoping review (see Figure 1). A reference list screening was conducted with the articles that were kept, and one additional study was included for synthesis and review.

Results

The scoping review revealed that maternal age does not always negatively impact level of bonding. Additionally, the literature had some implications that social determinants of health and race/ethnicity can impact level of bonding. See table 2 for a summary of results.

Prevalence of KMC Among Adolescent Mothers

Of the studies reviewed, two had samples comprised of exclusively adolescent mothers, three had studies that included adolescent mothers as a portion of their sample, and two that did not specify whether adolescent mothers were included in the sample. Although adolescent mothers were included in some samples, none gave explicit or implicit prevalence data for KMC among the adolescent mother population.

Maternal Attachment and Bonding

According to numerous studies, maternal age alone does not have a negative impact on maternal attachment with KMC. Zehra et al. found that young mothers who carry out KMC can experience levels of maternal attachment that are the same as or greater than non-adolescent mothers (Linares et al., 2017; Zehra & Rukiye, 2020). While some research teams did not directly investigate adolescent mothers' maternal bonding as a result of KMC, several other research teams also concluded that young mothers can have the same or greater level of attachment than non-adolescent mothers (Daglar & Nur, 2018; Kurt et al., 2020; Zanettini et al., 2019).

Social Determinants of Health

The literature indicates that compared to non-adolescent mothers, adolescent mothers are more likely to be affected by lower levels of income than older mothers (Godbout et al., 2016). Additionally, adolescent mothers are commonly affected by lower education levels than non-adolescent mothers (Schulkind & Sandler, 2019).

The literature does not address the direct impact of social determinants of health on bonding in relationship to KMC within the adolescent mother population. However, the evidence reveals how social determinants of health such as socioeconomic status and education level can impact maternal attachment, although, researchers debate ways in which social determinants of

health affect maternal attachment. Zehra & Rukiye (2020) found that lower levels of education led to higher levels of attachment, while Daglar & Nur (2018) and Kurt et al. (2020) found that mothers who were more highly educated had higher attachment levels. Furthermore, Daglar & Nur (2018) and Zehra & Rukiye (2020) found that being actively employed can lead to higher levels of attachment when compared to being a stay-at-home mom. Similarly, Kurt et al. (2020) found that young age and low socioeconomic status lead to lower levels of attachment.

Race/Ethnicity

No studies were found that examined how KMC varies based on race and ethnicity in the adolescent mother population. Additionally, studies were not found that examined for the impact of race and ethnicity on use of KMC. However, study results suggest that women of color participate in breastfeeding and baby-friendly practices less frequently than Caucasian women do (Munn et al., 2018).

Discussion

Knowing the prevalence of KMC among adolescent mothers would be useful in determining the potential advantages and challenges in using KMC with adolescent mothers and their infants. The gap in the literature regarding KMC in this population may suggest a lower prevalence, but certainly KMC is understudied as a potential intervention to increase mother-infant bonding in adolescents. However, this conclusion will not be validated until further investigation is done to determine a more accurate prevalence.

Although the literature suggests that maternal age does not have a direct impact on attachment, it may have an indirect impact. Adolescent mothers are more likely to have lower education levels than non-adolescent mothers (Schulkind & Sandler, 2019). Some researchers found that lower levels of education lead to higher levels of attachment, while other research

teams found that higher levels of education led to higher levels of attachment (Daglar & Nur, 2018; Kurt et al., 2020). Therefore, there seems to be some disagreement regarding the effects of education level on maternal attachment. With lack of consensus, further research is needed to determine the effects of education on attachment levels within the adolescent mother population. There is, however, some agreement in the literature on how socioeconomic status and employment can impact maternal attachment. Active employment has been shown to lead to higher levels of attachment when compared to being a stay-at-home mom (Daglar & Nur, 2018; Zehra & Rukiye, 2020). Further, young age and low socioeconomic status has been shown to lead to lower levels of attachment (Kurt et al., 2020). Since adolescent mothers are more likely to be affected by lower levels of income, this puts them at risk for lower attachment levels (Godbout et al., 2016). Furthermore, adolescent mothers are subject to lower levels of confidence, and low confidence can put mothers at risk for lower levels of attachment (Kenanga Purbasary et al., 2017; Kurniawati et al., 2019).

Although studies did not directly address differences between races in adolescent mothers' practice of KMC, there were some findings on how race may impact motherhood in general. Munn et al. (2018) found that women of color participate in breastfeeding and baby-friendly practices less frequently than Caucasian women, and this suggests that they may also practice KMC less frequently, especially since KMC was found to lead to greater breastfeeding and baby-friendly practices (Munn et al., 2018). This conclusion is supported by several studies' findings that mothers who performed KMC were also more likely to breastfeed (Godbout et al., 2016; Linares et al., 2017). Since these associations are unclear, further research must be done to determine race and ethnicity's impact on KMC within the adolescent mother population.

There are several barriers to KMC that affect all mothers, but that can be especially harmful for adolescent mothers. Several researchers found that KMC is not standardized within healthcare facilities (Chan et al., 2017; Chan et al., 2016; Koopman et al., 2016). Furthermore, studies indicate that mothers are often not informed on the benefits of KMC during their prenatal or intrapartum care (Chan et al., 2017; Lewis et al., 2019). Since research has shown that adolescent mothers are prone to lower levels of health literacy, the lack of a standard definition for KMC and poor education from nurses is a significant barrier to implementing KMC (MacLean, 2020). Additionally, Cattaneo et al. (2018) found that the principal enabler of KMC is social support from care partners and healthcare staff. If adolescent mothers lack this education and social support, this may have negative effects on their KMC practice.

Adolescent mothers are subject to lower levels of confidence than non-adolescent mothers, and low confidence levels can negatively affect growth and development and maternal attachment (Kenanga Purbasary et al., 2017; Ruchala & James, 1997; Çinar & Öztürk, 2014). Educating adolescent mothers on proper implementation of KMC may also increase adolescent mothers' self-confidence in providing care for their infants (Kenanga Purbasary et al., 2017; Kostandy & Ludington-Hoe, 2019; Zanettini et al., 2019). Kenanga Purbasary et al. (2017) found that providing booklets and KMC training positively impacted young mothers' confidence in caring for their infants. Kim and Manion (2019) found that support groups and self-efficacy activity sessions were effective in improving adolescent mothers' self-esteem.

Conclusion

Overall, this scoping review was not able to determine the prevalence of KMC among the adolescent mother population, and there were few implications on the impact of race and ethnicity on adolescent mothers' implementation of KMC. However, the research shows that

social determinants of health may have some impact on KMC implementation and quality of bonding. Further research is needed to explicitly examine KMC, social determinants of health, race, ethnicity, and maternal-infant bonding to learn the true extent of the differences between KMC in the adolescent mother population compared to non-adolescent mothers.

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Tables and Figures

Figure 1: Prisma 2009 Flow Diagram (Moher et al., 2009)

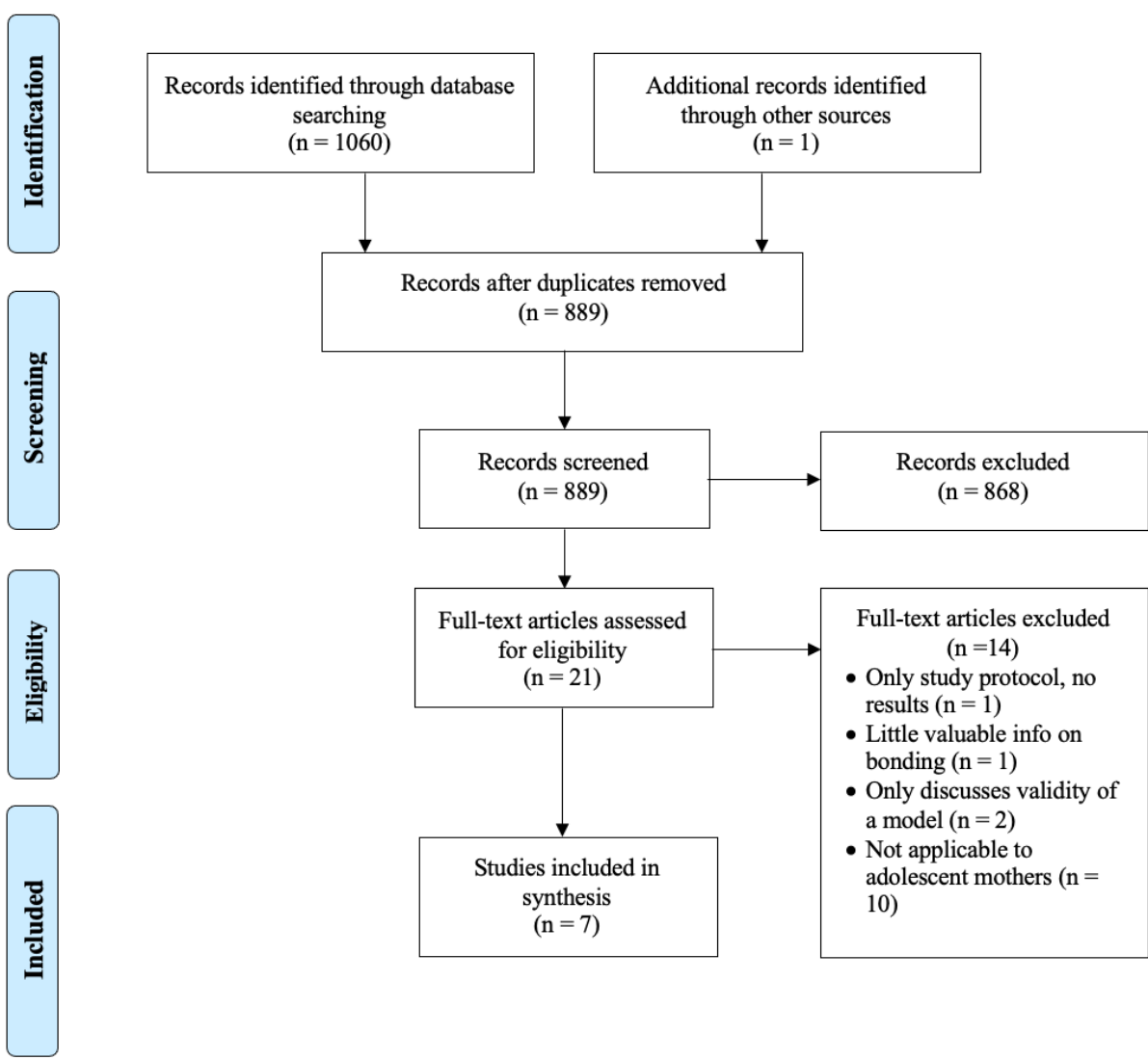


Table 1: Summary of Database Search

SUMMARY OF DATABASE SEARCH			
Database	Search Filters	Search Terms	Citations Returned
CINAHL	2015-2020	adolescent mother OR teen mother OR young mother OR adolescent parent AND kangaroo care OR KMC OR skin-to-skin OR kangaroo mother care OR touch OR therapeutic touch	10
CINAHL	2015-2020	kangaroo care OR KMC OR skin-to-skin OR kangaroo mother care OR touch OR therapeutic touch AND bonding OR attachment OR maternal attachment	161
CINAHL	2015-2020	kangaroo care OR KMC OR skin-to-skin OR kangaroo mother care OR touch OR therapeutic touch AND African American OR Hispanic American	29
CINAHL	2015-2020	kangaroo care OR KMC OR skin-to-skin OR kangaroo mother care OR touch OR therapeutic touch AND socioeconomic status OR healthcare access OR education OR social support AND bonding OR attachment OR maternal attachment	36
		Total Citations Returned: CINAHL	236
PubMed	2015-2020, English	adolescent mother OR teen mother OR young mother OR adolescent parent AND kangaroo care OR KMC OR skin-to-skin OR kangaroo mother care OR touch OR therapeutic touch	247
PubMed	2015-2020, English	kangaroo care OR KMC OR skin-to-skin OR kangaroo mother care OR touch OR therapeutic touch AND bonding OR attachment OR maternal attachment	429
PubMed	2015-2020, English	kangaroo care OR KMC OR skin-to-skin OR kangaroo mother care OR touch OR therapeutic touch AND African American OR Hispanic American	44
PubMed	2015-2020, English	kangaroo care OR KMC OR skin-to-skin OR kangaroo mother care OR touch OR therapeutic touch AND socioeconomic status OR healthcare access OR education OR social support AND bonding OR attachment OR maternal attachment	104
		Total Citations Returned: PubMed	824
		Total Citations Returned: PubMed and CINAHL	1060
		Total Citations Returned After Duplicates Removed	889

Table 2: Matrix of Retrieved Articles

Year	Author(s)	Purpose	Sample	Study Design	Findings
2020	Zehra & Rukiye	Investigate effect of early KMC on attachment	335 MID*	DS	Young age, low education, & active employment encourages SA
2018	Daglar & Nur	Address relationship between bonding and maternal mood	244 M*	CS DS	Young age, more education, & demanding career encourages SA.
2020	Kurt et al.	Investigate influence of KMC on maternal attachment	60 MID**	Q-ES	Younger age may negatively impact SA
2019	Zanettini et al.	Understand experience of adolescent and adult mothers	11 M*	DS	AMs are able to form SA equal to non-AMs
2018	Munn et al.	Determine factors influencing SE US mothers' participation in BFP and BF	234 MID**	CS MMS	Minority race leads to low participation in BF and BFP SSC led to greater participation in BFP
2016	Godbout et al.	Examine factors that influence adolescent mothers' decision to BF	457 AM*	RCR	AM have lower levels of income
2019	Schulkind & Sandler	Examine long-term outcomes of AM	>400,000 AM (using US Census & ACS survey)	CLS	AM have lower education levels

ABBREVIATIONS KEY:

*	Sample includes adolescent mothers		
**	Does not specify whether adolescent mothers are included in sample		
AM	Adolescent mothers	M	Mothers
BF	Breastfeeding	MID	Mother-infant dyads
BFP	Baby-friendly practices	MMS	Mixed-methods study
CLS	Correlational Study	Q-ES	Quasi-experimental study
C-S	Cross-sectional	RCR	Retrospective Chart Review
DS	Descriptive Study	SA	Secure Attachment