

Kangaroo mother care for preterm or low birth weight infants: A systematic review and meta-analysis

Supplement 1

Definitions used in the review

Panel 1: Definitions used in the review
<p>Kangaroo mother care: Skin-to-skin contact between mother and newborn will be taken as the minimal core component of KMC. Additional components include frequent or exclusive breastfeeding and early discharge</p> <p>'Early initiated' KMC: KMC provided immediately or in the first 24 hours of birth</p> <p>'Late' initiation of KMC: KMC provided after 24 hours of birth</p> <p>KMC in stable babies: KMC provided to babies who are considered 'stable' before enrolment as defined by the study authors</p> <p>KMC in unstable babies: KMC provided to babies who were not considered stable before enrolment by the study authors</p>

Outcomes and their definitions

Primary outcome	Definition	Timepoint of ascertainment
Mortality	All-cause mortality	At discharge, at 28 d, and latest follow up
Hypothermia	As defined in individual studies	In-hospital or at home during study period
Severe infection/sepsis	As defined in individual studies or determined by the culture of bacteria or fungus from blood, cerebrospinal fluid, urine, or from a normally sterile body space OR Any clinically defined infection, including possible serious bacterial infection (PSBI), diarrhea, pneumonia	At discharge, at 28 d, and latest follow up
Severe illness	As defined in individual studies	At discharge, at 28 d, and latest follow up
Infant growth	Weight, Length, Head circumference (as mean, z score < 2 SD or < 10 th centile for the index population)	At discharge, at 28 d, and latest follow up
Neurodevelopment	Neurodevelopment or educational scores measured using validated assessment tools.	At 12m, and latest follow up
Neurodevelopmental disability	Severe neurodevelopmental disability, defined as anyone or a combination of the following: non-ambulant cerebral palsy, auditory and visual impairment, neurodevelopmental impairment	At 12m, and latest follow up

Search terms and search results

PubMed- 31st March 2021

Search	Query	Results
#8	Search: #1 AND #2 AND #7 Sort by: Most Recent	459
#7	Search: #4 AND #5 Sort by: Most Recent	2,636,074
#6	Search: #1 AND #2 AND #3 Sort by: Most Recent	478
#5	Search: (epidemiology OR case control study OR cohort analysis OR cross-sectional study OR case study OR follow up OR longitudinal study OR retrospective study OR prospective study OR observational study OR case control OR epidemiologic OR case referent OR case stud* OR case series OR cohort OR cross sectional OR follow up OR longitudinal OR retrospective* OR prospective* OR observational OR adverse effect OR interrupted time series OR correlational OR ecological stud* OR descriptive stud*). Sort by: Most Recent	9,268,175
#4	Search: communit* OR home-base* OR homebase* OR county OR domiciliary OR developing OR disadvantaged OR facility OR home OR impoverished OR peripheral OR poor OR rural OR slum OR underdeveloped OR underserved unit* OR village* OR residence characteristics OR rural population OR developing countries Sort by: Most Recent	7,419,770
#3	Search: (randomized controlled trial [pt] OR controlled clinical trial [pt] OR randomized [tiab] OR placebo [tiab] OR drug therapy [sh] OR randomly [tiab] OR trial [tiab] OR groups [tiab]) Sort by: Most Recent	5,024,760
#2	Search: (((((((infant[MeSH Terms]) OR (infant, low birth weight[MeSH Terms])) OR (infant, mortality[MeSH Terms])) OR (breastfeeding[MeSH Terms])) OR (Mother-Child Relations[MeSH Terms])) OR (infant care[MeSH Terms])) OR (length of stay[MeSH Terms])) OR (physical stimulation[MeSH Terms])) OR (weight gain[MeSH Terms])) OR ((infant, newborn[MeSH] OR newborn OR neonate OR neonatal OR premature OR low birth weight OR VLBW OR LBW or infan* or neonat*)) Sort by: Most Recent	2,052,623
#1	Search: ((((((kangaroo care)) OR ("kangaroo care"[Text Word])) OR ("kangaroo mother care"[Text Word])) OR ("kangaroo mother method"[Text Word])) OR (skin-skin care[Text Word])) OR (skin-to-skin contact) Sort by: Most Recent	1,913

Embase 31st March 2021

1.	(kangaroo mother care OR kangaroo mother method OR kangaroo care OR skin-to-skin contact OR skin-to-skin care).ti,ab,af,if	2,601
2.	(infant, newborn OR newborn OR neonate OR neonatal OR premature OR very low birth weight OR low birth weight OR VLBW OR LBW OR Newborn OR infan* OR neonat*).ti,ab	967,431
3.	(randomized controlled trial controlled clinical trial OR randomized OR placebo OR clinical trial OR randomly OR trial OR clinical trial).ti,ab,cf,cg,pt	1,815,889
4.	<i>(#1 AND #2 AND #3)</i>	428
5.	(communit* OR home base* OR homebase* OR county OR domiciliary OR developing OR disadvantaged OR facility OR home OR impoverished OR peripheral OR poor OR rural OR slum OR underdeveloped OR underserved unit* OR village* OR residence characteristics OR rural population OR developing countries).ti,ab,if	3,530,921
6.	EPIDEMIOLOGY/ OR exp CASE CONTROL STUDY/ OR cohort analysis	1,042,933
7.	CROSS-SECTIONAL STUDY/ OR CASE STUDY/ OR follow up OR LONGITUDINAL STUDY/	2,608,527
8.	RETROSPECTIVE STUDY/ OR PROSPECTIVE STUDY/ OR OBSERVATIONAL STUDY/	1,767,844
9.	(case control).ti,ab,cf,cg,pt	171,831
10.	(epidemiologic).ti,ab,pt	85,047
11.	(case referent).ti,ab,pt	723
12.	(case stud*).ti,ab,pt	132,190
13.	(case series OR cohort OR cross sectional OR follow up OR longitudinal OR retrospective* OR prospective* OR observational OR adverse effect OR (controlled before AND after) OR interrupted time series OR correlational OR ecological stud* OR descriptive stud*).ti,ab,pt	4,641,879
14.	<i>5-13 (combined with OR)</i>	5,932,137
15.	<i>(1 AND 2 AND 4 AND 14)</i>	239

CINAHL and Medline

1.	(kangaroo mother care OR kangaroo care method OR skin-to-skin care OR skin-to-skin contact).ti,ab,af,mj	2,184
2.	(infant, newborn OR newborn OR neonate OR neonatal OR premature OR low birth weight OR VLBW OR LBW OR Newborn OR infan* OR neonat*).ti,ab,af,mj	538,234
3.	(randomized controlled trial OR controlled clinical trial OR randomized OR placebo OR clinical trials as topic OR randomly OR trial OR PT clinical trial).ti,ab,af,mj	610,826
4.	<i>(1 AND 2 AND 3)</i>	315
5.	EPIDEMIOLOGY/ OR exp CASE CONTROL STUDY/ OR cohort analysis	125,097
6.	CROSS-SECTIONAL STUDY/ OR CASE STUDY/ OR follow up OR LONGITUDINAL STUDY/	266,536

7.	RETROSPECTIVE STUDY/ OR PROSPECTIVE STUDY/ OR OBSERVATIONAL STUDY/	0
8.	(epidemiologic).ti,ab,pt	17,488
9.	(case referent).ti,ab,pt	552
10.	(case stud*).ti,ab,pt	682,098
11.	(case series OR cohort OR cross sectional OR follow up OR longitudinal OR retrospective* OR prospective* OR observational OR adverse effect OR (controlled before AND after) OR interrupted time series OR correlational OR ecological stud* OR descriptive stud*).ti,ab,pt	1,041,862
12.	5-11 (combined with OR)	1,585,565
13.	(communit* OR home base* OR homebase* OR county OR domiciliary OR developing OR disadvantaged OR facility OR home OR impoverished OR peripheral OR poor OR rural OR slum OR underdeveloped OR underserved unit* OR village* OR residence characteristics OR rural population OR developing countries).ti,ab,hw	948,279
14.	(1 AND 2 AND 12 AND 13)	144

Medline (OVID) 31st March 2021

1.	(kangaroo mother care OR kangaroo care method OR skin-to-skin care OR skin-to-skin contact).ti,ab,mm,mh,if,mj	1,796
2.	(infant, newborn OR newborn OR neonate OR neonatal OR premature OR low birth weight OR VLBW OR LBW OR Newborn).ti,ab,mm,mh,if,mj	895,376
3.	(randomized controlled trial OR controlled clinical trial OR randomized OR placebo OR clinical trials as topic OR randomly OR trial OR PT clinical trial).ti,ab,mm,mh,if,mj	1,415,815
4.	(1 AND 2 AND 3)	315
5.	(community OR home based OR homebased OR county OR domiciliary OR developing OR disadvantaged OR facility OR home OR impoverished OR peripheral OR poor OR rural OR slum OR underdeveloped OR underserved unit OR village OR residence characteristics OR rural population OR developing countries).ti,ab,mm,mh,if,mj	2,728,162
6.	(epidemiology OR case control study OR cohort analysis OR cross-sectional study OR case study OR follow up OR longitudinal study OR retrospective study OR prospective study OR observational study OR case control OR epidemiologic OR case referent OR case study OR case series OR cohort OR cross sectional OR follow up OR longitudinal OR retrospective OR prospective OR observational OR adverse effect OR interrupted time series OR correlational OR ecological study OR descriptive study).ti,ab,mm,mh,if,mj	3,618,190
7.	(1 AND 2 AND 5 AND 6)	177

Other databases: 31st March 2021

1	PsycINFO	(kangaroo mother care OR kangaroo care method OR skin-to-skin care OR skin-to-skin contact).ti,ab	327
2	PsycINFO	(infant, newborn OR newborn OR neonate OR neonatal OR premature OR low birth weight OR VLBW OR LBW OR Newborn).ti,ab	39,101

3	PsycINFO	(randomized controlled trial OR controlled clinical trial OR randomized OR placebo OR clinical trials as topic OR randomly OR trial OR PT clinical trial).ti,ab	229,406
4	PsycINFO	(community OR home based OR homebased OR county OR domiciliary OR developing OR disadvantaged OR facility OR home OR impoverished OR peripheral OR poor OR rural OR slum OR underdeveloped OR underserved unit OR village OR residence characteristics OR rural population OR developing countries).ti,ab	695,732
5	PsycINFO	(epidemiology OR case control study OR cohort analysis OR cross-sectional study OR case study OR follow up OR longitudinal study OR retrospective study OR prospective study OR observational study OR case control OR epidemiologic OR case referent OR case study OR case series OR cohort OR cross sectional OR follow up OR longitudinal OR retrospective OR prospective OR observational OR adverse effect OR interrupted time series OR correlational OR ecological study OR descriptive study).ti,ab	644,952
	PsycINFO	(1 AND 2 AND 3)	37
	PsycINFO	(1 AND 2 AND 4 AND 5)	14
	AMED	(kangaroo mother care OR kangaroo care method OR skin-to-skin care OR skin-to-skin contact).ti,ab	5
1	EMCARE	(kangaroo mother care OR kangaroo care method OR skin-to-skin care OR skin-to-skin contact).ti,ab	1,153
2	EMCARE	(infant, newborn OR newborn OR neonate OR neonatal OR premature OR low birth weight OR VLBW OR LBW OR Newborn).ti,ab	118,415
3	EMCARE	(randomized controlled trial OR controlled clinical trial OR randomized OR placebo OR clinical trials as topic OR randomly OR trial OR PT clinical trial).ti,ab	493,916
4	EMCARE	(community OR home based OR homebased OR county OR domiciliary OR developing OR disadvantaged OR facility OR home OR impoverished OR peripheral OR poor OR rural OR slum OR underdeveloped OR underserved unit OR village OR residence characteristics OR rural population OR developing countries).ti,ab	868,173
5	EMCARE	(epidemiology OR case control study OR cohort analysis OR cross-sectional study OR case study OR follow up OR longitudinal study OR retrospective study OR prospective study OR observational study OR case control OR epidemiologic OR case referent OR case study OR case series OR cohort OR cross sectional OR follow up OR longitudinal OR retrospective OR prospective OR observational OR adverse effect OR interrupted time series OR correlational OR ecological study OR descriptive study).ti,ab	1,240,198
	EMCARE	(1 AND 2 AND 3)	148
	EMCARE	(1 AND 2 AND 4 AND 5)	66
1	BNI	(kangaroo mother care OR kangaroo care method OR skin-to-skin care OR skin-to-skin contact).ti,ab	539
2	BNI	(infant, newborn OR newborn OR neonate OR neonatal OR premature OR low birth weight OR VLBW OR LBW OR Newborn).ti,ab	17,783
3	BNI	(randomized controlled trial OR controlled clinical trial OR randomized OR placebo OR clinical trials as topic OR randomly OR trial OR PT clinical trial).ti,ab	38,641
4	BNI	(community OR home based OR homebased OR county OR domiciliary OR developing OR disadvantaged OR facility OR home OR impoverished OR peripheral OR poor OR rural OR slum OR underdeveloped OR underserved unit OR village OR residence characteristics OR rural population OR developing countries).ti,ab	140,284
5	BNI	(epidemiology OR case control study OR cohort analysis OR cross-sectional study OR case study OR follow up OR longitudinal study OR retrospective study OR prospective study OR observational study OR case control OR epidemiologic	105,504

		OR case referent OR case study OR case series OR cohort OR cross sectional OR follow up OR longitudinal OR retrospective OR prospective OR observational OR adverse effect OR interrupted time series OR correlational OR ecological study OR descriptive study).ti.ab	
	BNI	(1 AND 2 AND 3)	54
	BNI	(1 AND 2 AND 4 AND 5)	26

Cochrane CENTRAL search terms

Search terms "kangaroo care" OR "kangaroo mother care" OR "skin to skin care" OR "skin-skin care" OR kangaroo in Title Abstract Keyword - (Word variations have been searched)- 378 Trials matching

UPDATED Search (31 March 2021 to 31 March 2022)

PubMed

#7	Search: #5 AND #6	59
#6	Search: #1 AND #2 AND #3 AND #4	545
#5	Search: ("2021/03/31"[Date - Create] : "2022/03/31"[Date - Create])	1,554,148
#4	Search: (epidemiology OR case control study OR cohort analysis OR cross-sectional study OR case study OR follow up OR longitudinal study OR retrospective study OR prospective study OR observational study OR case control OR epidemiologic OR case referent OR case stud* OR case series OR cohort OR cross sectional OR follow up OR longitudinal OR retrospective* OR prospective* OR observational OR adverse effect OR interrupted time series OR correlational OR ecological stud* OR descriptive stud*).	10,118,843
#3	Search: communit* OR home-base* OR homebase* OR county OR domiciliary OR developing OR disadvantaged OR facility OR home OR impoverished OR peripheral OR poor OR rural OR slum OR underdeveloped OR underserved unit* OR village* OR residence characteristics OR rural population OR developing countries	8,194,370
#2	Search: : (((((((((infant[MeSH Terms]) OR (infant, low birth weight[MeSH Terms])) OR (infant, mortality[MeSH Terms])) OR (breastfeeding[MeSH Terms])) OR (Mother-Child Relations[MeSH Terms])) OR (infant care[MeSH Terms])) OR (length of stay[MeSH Terms])) OR (physical stimulation[MeSH Terms])) OR (weight gain[MeSH Terms])) OR ((infant, newborn[MeSH] OR newborn OR neonate OR neonatal OR premature OR low birth weight OR VLBW OR LBW or infan* or neonat*))	2,159,091
#1	Search: ((((((kangaroo care)) OR ("kangaroo care"[Text Word])) OR ("kangaroo mother care"[Text Word])) OR ("kangaroo mother method"[Text Word])) OR (skin-skin care[Text Word])) OR (skin-to-skin contact)	2,261

Database(s): **Ovid MEDLINE(R)** 1946 to March Week 4 2022

Search Strategy:

#	Searches	Results
1	kangaroo mother care OR kangaroo care method OR skin-to-skin care OR skin-to-skin contact {Including Related Terms}	2707
2	infant, newborn OR newborn OR neonate OR neonatal OR premature OR low birth weight OR VLBW OR LBW OR Newborn {Including Related Terms}	10001
3	randomized controlled trial OR controlled clinical trial OR randomized OR placebo OR clinical trials as topic OR randomly OR trial OR PT clinical trial {Including Related Terms}	10085
4	((kangaroo mother care or kangaroo care method or skin-to-skin care or skin-to-skin contact) and (infant, newborn or newborn or neonate or neonatal or premature or low birth weight or VLBW or LBW or Newborn) and (randomized controlled trial or controlled clinical trial or randomized or placebo or clinical trials as topic or randomly or trial or PT clinical trial)).af.	347
5	((kangaroo mother care or kangaroo care method or skin-to-skin care or skin-to-skin contact) and (infant, newborn or newborn or neonate or neonatal or premature or low birth weight or VLBW or LBW or Newborn) and (randomized controlled trial or controlled clinical trial or randomized or placebo or clinical trials as topic or randomly or trial or PT clinical trial)).af.	347
6	limit 5 to yr="2021 - 2022"	35

Database(s): **Embase** 1974 to 2022 April 04

Search Strategy:

#	Searches	Results
1	kangaroo mother care OR kangaroo mother method OR kangaroo care OR skin-to-skin contact OR skin-to-skin care {Including Related Terms}	48796
2	limit 1 to yr="2021 - 2022"	4174
3	((kangaroo mother care or kangaroo mother method or kangaroo care or skin-to-skin contact or skin-to-skin care) and (infant, newborn or newborn or neonate or neonatal or premature or low birth weight or VLBW or LBW or Newborn) and (randomized controlled trial or controlled clinical trial or randomized or placebo or clinical trials as topic or randomly or trial or PT clinical trial)).af.	587
4	limit 3 to yr="2021 - 2022"	74

Database(s): **AMED (Allied and Complementary Medicine)** 1985 to March 2022, **Ovid Emcare**

1995 to 2022 Week 13, **HMIC Health Management Information Consortium** 1979 to January 2022

Search Strategy:

#	Searches	Results
1	((kangaroo mother care or kangaroo care method or skin-to-skin care or skin-to-skin contact) and (infant, newborn or newborn or neonate or neonatal or premature or low birth weight or VLBW or LBW or Newborn) and (randomized controlled trial or controlled clinical trial or randomized or placebo or clinical trials as topic or randomly or trial or PT clinical trial)).af.	246
2	limit 1 to yr="2021 - 2022"	22