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## Effectiveness of Video-Assisted Teaching on Kangaroo Mother Care Among Postnatal Mothers

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### ABSTRACT

Kangaroo mother care, holding a small infant skin to skin against the mother's chest with support for breastfeeding, is among the best supported low-cost interventions for infants of low birth weight, but mothers must learn it, often while tired and unsure. Recorded video is increasingly used to teach it on postnatal wards. This narrative review asks what published work suggests about the effectiveness of video-assisted teaching on kangaroo mother care among postnatal mothers, and how strong that evidence is. It draws on trials and reviews of kangaroo mother care, studies of barriers, research on video in health education, and learning theory, and it reports no new data. The case for kangaroo mother care itself is strong. The case for video as the way to teach it is plausible but rests mostly on indirect evidence, and in the reading reported here direct studies are few, mostly small, and usually measure knowledge or satisfaction rather than observed practice after discharge. Video is a reasonable component of teaching alongside bedside coaching and follow-up, and claims of effectiveness should be read as claims about knowledge unless practice was observed.

**Keywords:** Kangaroo mother care; Video-assisted teaching; Postnatal mothers; Health education; Skin-to-skin contact; Low birth weight; Narrative review

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**Article Class:** Narrative Review

### 1. Introduction

Preterm birth and low birth weight remain among the leading reasons that newborns die or struggle in their first weeks, and the burden falls hardest in low- and middle-income countries (1, 2, 3). Kangaroo mother care appears among the low-cost interventions that could prevent a

large share of newborn deaths if delivered reliably (4, 5).

Kangaroo mother care, usually shortened to KMC, was developed in Bogotá in the late 1970s as a response to crowded incubator wards. It combines prolonged skin-to-skin contact between mother and infant, breastfeeding wherever possible,



and early discharge with support at home (6). For infants of low birth weight the Cochrane evidence points to lower mortality, fewer severe infections and less hypothermia than conventional care (7). Yet an intervention that works in a trial still has to be learned by the person who carries it out, and in KMC that is the mother, often tired and sitting beside a very small baby.

Teaching her is therefore part of the intervention. Nurses demonstrate at the bedside, hand out leaflets or run group sessions, and short recorded videos on a screen or phone have joined the mix, because a video can be repeated and does not depend on a busy nurse being free. Whether this improves what mothers know, how confident they feel and how they practise KMC is the question taken up here. A mother watching a recording needs to see her own situation in it, not a ward demonstration she cannot reproduce at home.

The title might suggest a local evaluation. It is not one, and we report no data from mothers, wards or hospitals. We ask what published work on KMC, video in health education and adult learning says about the likely effect of video-assisted teaching. The aim is to describe the evidence as it stands, not as it is usually summarised.

## 2. Literature Review

### 2.1 What Kangaroo Mother Care Involves

Descriptions of KMC are less uniform than the name suggests. Studies differ in when the practice starts, how many hours a day the infant is held skin to skin, and whether feeding and follow-up are part of the package (8), although recommendations describe the core as skin-to-skin contact and support for breastfeeding, mother and family (9).

The infant is held upright against the mother's chest in a cloth wrap, and the mother has to learn how to position the head and airway safely, how to breastfeed in that position, and how to recognise a baby who is becoming too cold, too warm or unwell. All of this is awkward the first time, which is the case for showing as well as telling.

### 2.2 What the Trials Show

The first randomised trial compared KMC with conventional incubator care for infants of low birth weight and found it safe and at least as good on the outcomes examined (10). Other trials followed in Ethiopia and elsewhere (11, 12), and skin contact from birth gave better physiological stabilisation than incubator care (13). The Cochrane review that pooled this work reported lower mortality, lower risk of severe infection and hypothermia, and better growth and breastfeeding, while noting that most trials could not be blinded (7). A meta-analysis reached similar conclusions (14), and modelling had estimated the share of preterm deaths that KMC might avert (15).

Benefits beyond survival are also reported. Skin-to-skin care lessens the pain response to procedures (16), supports breastfeeding (17, 18) and may ease parental stress (19, 20). Follow-up studies describe more responsive parenting and better child development (21, 22, 23), and a twenty-year follow-up of the Bogotá trial reported lasting social differences (24). Early skin contact has also been studied in healthy term newborns (25, 26). Table 1 sets each component of KMC against its evidence.

### 2.3 Mothers, Learning and Confidence

Social cognitive theory proposes that self-efficacy, confidence in one's own ability, shapes whether a person starts a task and persists when it is difficult, and



that it is built partly by watching others succeed at the task (27). For a mother with a fragile infant, seeing another mother do KMC safely offers reassurance that a leaflet does not.

**Table 1.** Components of kangaroo mother care and the kind of evidence behind each.

| Component                  | What it involves                                       | Main evidence                    |
|----------------------------|--------------------------------------------------------|----------------------------------|
| Skin-to-skin contact       | Infant upright on the mother's chest, held by a wrap   | Trials and meta-analyses (7, 14) |
| Breastfeeding support      | Feeding at the chest; positioning taught to the mother | Trials of mixed size (17, 18)    |
| Early discharge, follow-up | Practice continues at home with visits                 | Facility-based trials (10, 11)   |
| Later development          | Parenting and child development                        | Follow-up studies (23, 24)       |

Note: Qualitative summary of the cited literature; the strength of evidence varies by component and population.

Reviews of barriers to KMC point the same way: mothers describe discomfort, lack of privacy, worry about handling a small baby, and uneven support from staff and relatives (28, 29). Lower health literacy is linked to worse health outcomes (30), a reason to favour spoken and visual formats over printed leaflets alone, which not every mother can easily read.

## 2.4 Video as a Teaching Medium

A systematic review of video-based education found that videos influenced health behaviours in many studies, but the studies differed too much to say which features of a video mattered (31). A meta-analysis of internet-based learning found large gains over no teaching and results similar to other instruction (32), and its lead author later argued that research should ask how and why a medium works, not whether it beats no medium (33).

What a video can do well follows from the principles of multimedia learning. Learners process words and pictures through separate channels of limited capacity, so narrated, uncluttered material tends to be learned better (34, 35), and novices benefit from short segments (36, 37). Table 2 maps features of a video to these principles. Figure 1 shows the chain of reasoning that links a video to infant outcomes. Each link can fail: the mother may not watch, may not understand, may lack support at home, or may practise for too few hours to matter. This is one reason the same intervention can look convincing in one report and unremarkable in the next.

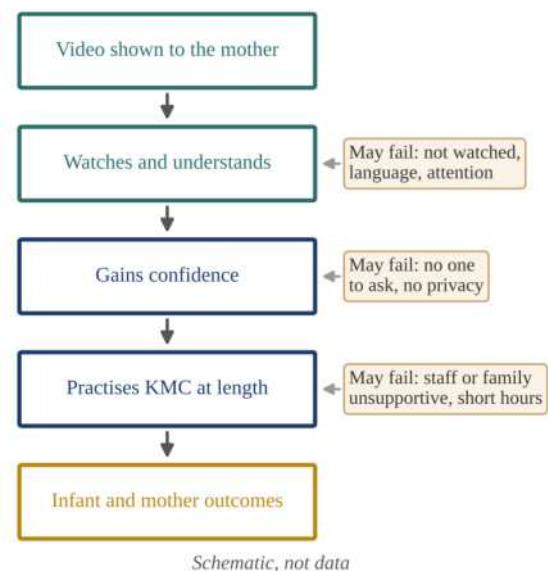


**Figure 1.** Chain of reasoning from a teaching video to infant outcomes, with common points of failure (schematic, not data).

## 3. Materials and Methods

### 3.1 Scope

The review asks whether published work suggests that video-assisted teaching improves mothers' knowledge, confidence and practice of KMC after delivery, and how strong that evidence is. We looked at the published literature in general; no local data are reported, and only work up to 2017 is used.



**Table 2.** Video features, the learning principle behind each, and a use in teaching kangaroo mother care.

| Video feature         | Learning principle                            | Use for kangaroo care                                   |
|-----------------------|-----------------------------------------------|---------------------------------------------------------|
| Narration over images | Words and pictures use separate channels (34) | Voice explains wrap tying while hands are shown         |
| Short segments        | Limits cognitive load for novices (36, 37)    | Positioning, feeding and danger signs as separate clips |
| Mothers as models     | Watching others builds confidence (27)        | Mothers from a similar background shown coping          |
| Repeat viewing        | Learner controls the pace (35)                | Replay on the ward, at home, with relatives             |

Note: Principles are from the multimedia-learning and self-efficacy literature; the uses are illustrations, not tested protocols.

### 3.2 Literature Assembly

This is a narrative synthesis of trials and reviews of KMC, studies of barriers and implementation, research on video in health education, and learning theory. We did not run a formal systematic search, use a registered protocol or screen records in duplicate, and we do not claim otherwise. Sources reflect the authors' judgement and may miss relevant work. Narrative reviews suit broad questions but are open to selection bias (38, 39).

### 3.3 Appraisal Framework

To weigh a study we asked five questions. What exactly was taught, and to whom? What did the comparison group receive? What was measured, and when? How many mothers took part, and how were they allocated? What was left out of the report? Each of these questions is simple, and each is easy to leave unasked. These guide how much weight a result bears. Table 3 lists the weaknesses we looked for.

**Table 3.** Weaknesses looked for in studies of video teaching and what a better report would state.

| Weakness                 | Consequence                                  | Better report states              |
|--------------------------|----------------------------------------------|-----------------------------------|
| Content not described    | Cannot tell what mothers saw (8)             | Length, content, who delivered it |
| Unclear comparison group | Video and extra attention not separated (33) | What controls received, in detail |
| Before-and-after only    | Change may be ordinary recovery              | A concurrent comparison group     |
| Knowledge, not practice  | Understanding may not become behaviour (31)  | Observed hours of skin contact    |

Note: Weaknesses are those discussed in the cited methodological literature and are not attributed to any single study.

## 4. Results

### 4.1 What Is Established About KMC Itself

The evidence for KMC itself, summarised in section 2.2, is the strongest part of the picture (7, 14, 25).

The picture changes when the question is how to teach it. In our reading we did not find a large, well-controlled trial that tested video-assisted teaching of KMC against standard teaching in postnatal mothers and then followed practice after discharge. What we saw was smaller: single-ward reports, commonly quasi-experimental, that tend to measure knowledge or satisfaction soon after the session. Such reports are worth having, but they sit well below the trials that support KMC itself. The point is not that such studies are poor, only that their results travel less far than their abstracts imply. Figure 2 summarises our qualitative reading.

### 4.2 Why a Benefit Is Plausible

Direct evidence is thin, so the case rests on indirect evidence. Observed learning from



models builds confidence (27), video can carry that modelling to every mother whether or not a nurse is free (31), and good multimedia helps novices (34). Plausible gains are not measured gains, and a mother on a ward with no privacy may watch the same video and still not practise, because the barriers described earlier (28, 29) are not mainly about information. A mother who has slept and had a chance to ask questions behaves differently from one who has not.

|                                   | KMC itself | Video teaching of KMC |
|-----------------------------------|------------|-----------------------|
| Survival and infection            | Strong     | Not found             |
| Breastfeeding                     | Moderate   | Not found             |
| Parental stress and mood          | Limited    | Not found             |
| Mothers' knowledge after teaching | n/a        | Limited               |
| Observed practice after discharge | Limited    | Sparse                |

*Reviewers' qualitative reading of the cited literature, not data*

**Figure 2.** Qualitative reading of how strong the evidence is for kangaroo mother care itself and for video teaching of it (schematic, not data).

#### 4.3 Timing, Setting and Cost

Teaching can begin before birth, on the ward, at discharge or at a follow-up visit (Figure 3), but we found little published work comparing these timings, and cost is rarely reported. Video is often presented as saving nurses' time, yet production, equipment and the time spent watching with a mother all count.

#### 4.4 Quality of the Evidence

Several limitations recur (Table 3). The content of the teaching is often described only briefly. A comparison group that receives nothing cannot separate the video from the extra attention of being enrolled (33).



*Illustrative moments only; schematic, not data*

**Figure 3.** Moments in the postnatal period at which teaching can occur (schematic, not data).

Outcomes are another weak point. Knowledge scores are easy to collect and tend to rise after any teaching, but KMC is a behaviour, and what matters is how many hours a day the infant is actually held skin to skin, and for how many days (8). A mother who holds the baby only briefly has done KMC in name. Small groups make estimates unstable. Read this way, a null result from a small study is not evidence that the method fails. Differences in how KMC is defined add heterogeneity (9).

## 5. Discussion

### 5.1 Interpretation

The main finding is conditional. KMC itself is well supported, and video is a sensible way of teaching part of what mothers need. What the literature we read does not yet show is that adding video to usual teaching changes how long and how safely mothers practise KMC, or infant health. A claim of effectiveness should be read as a claim about knowledge or satisfaction unless practice and infant outcomes were measured.

KMC depends on people and place, and support from staff and family is repeatedly described as an enabler (28, 40, 41). Video is better treated as one part of a package with bedside coaching, a suitable space and follow-up. The same points would apply to any new teaching aid, not only to



video.

## 5.2 Limitations

This is a narrative review without a formal search, and it may have missed studies. We did not pool numerical results, so the review cannot say how large any effect is, and most sources are indirect evidence for the specific question of video teaching. Reviews are more useful when they say where the evidence stops than when they smooth the edges over.

## 5.3 Directions for Future Work

A study that could answer the question would randomise mothers, or wards, to video plus usual teaching versus usual teaching with equal attention, and would describe both fully. It would measure observed practice, hours of skin contact and breastfeeding at defined follow-up points rather than knowledge on the day alone (8, 17), allow for clustering when mothers on one ward share nurses, and report ranges. The control group's teaching deserves the same detail as the video. Describing both arms in the same detail is a habit worth keeping even when the answer seems obvious.

## 6. Conclusion

Kangaroo mother care is among the best supported low-cost practices for small infants, and mothers need to be taught it. Video-assisted teaching is a plausible way of doing so, supported by learning theory, but direct evidence of its effect on KMC practice and infant outcomes was limited in the literature we reviewed. That is a modest conclusion, but it is the one the literature can currently carry.

The practical message is modest: use video as one part of teaching, alongside bedside coaching and follow-up. The research message is sharper: compare like with like, observe what mothers do after discharge, and report enough detail for others to judge

whether the result applies to them.

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## 9. Conflict of Interest

The authors declare no conflict of interest.

## 10. Author Contributions

S.M. conceived the review and wrote the sections on kangaroo mother care and its evidence. K.Z. wrote the sections on maternal learning and video-based education. T.H. wrote the sections on postnatal care settings and study design. All authors revised the manuscript and approved the final version.

## 11. Ethics Statement

This is a review of published literature. No participants were recruited and no ethical approval was required.

## 12. Data Availability

No new data were generated. All sources are cited in the reference list.

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