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Waterproof Casts For The Management Of Upper Limb Fractures In Children

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Waterproof casts for the management of upper limb fractures in children : a systematic review and meta-analysis.

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Contributing Authors:

- N Badhe
- C Busby
- A See
- C Deacon
- T Altell
- BJ Ollivere
- BA Marson

Synopsis

Five studies including 390 children with upper limb fractures were included in this systematic review and meta-analysis comparing waterproof casts vs. standard non-waterproof casts. Pooled outcomes of interest included comfort, itchiness, child and parent satisfaction, functional performance (ASK-P), return to activities, and complication rates. Waterproof casts significantly improved comfort, itchiness, and satisfaction, and yielded higher functional scores on the ASK-P. There were no significant differences in pain, skin complications, or loss of fracture reduction. These findings suggest waterproof casts are a safe and more comfortable alternative with improved satisfaction and function in children.

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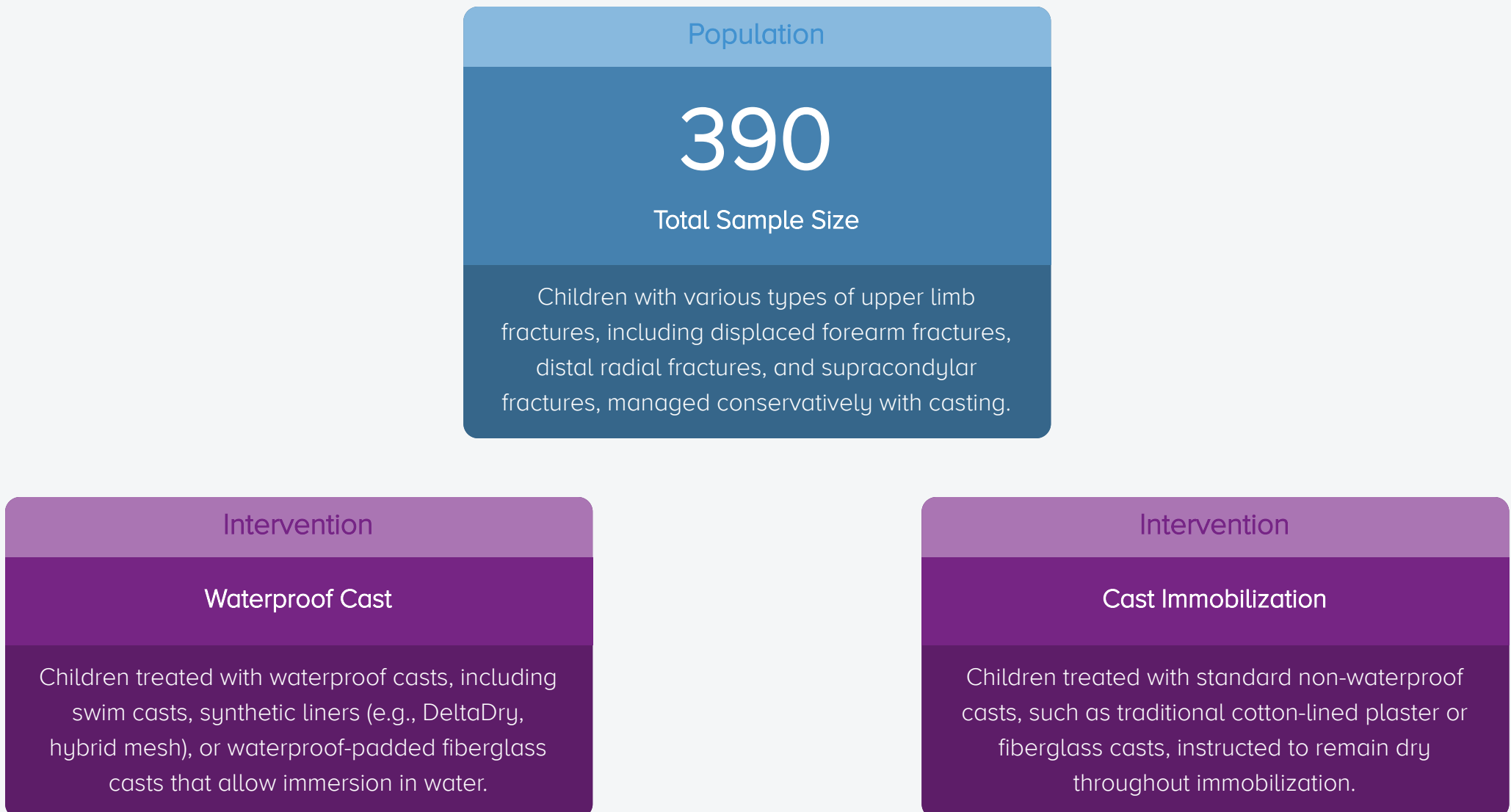
Why was this study needed now?

Upper limb fractures are the most common pediatric fractures, and most are treated conservatively with casts. However, standard casts can limit hygiene, bathing, and overall satisfaction. Waterproof casts, though potentially beneficial, are underused due to concerns over cost, stability, and limited evidence on outcomes. This study addresses the lack of high-quality comparative evidence to evaluate whether waterproof casts offer measurable clinical advantages over standard options in children.

What was the principal research question?

In children with upper limb fractures, does treatment with waterproof casts, improve functional outcomes, comfort, and satisfaction compared to standard non-waterproof casts, without increasing complication rates?

What were the important study characteristics?



Outcomes

- Normalized comfort scale
- Normalized itchiness scale
- Normalized heat and sweatiness scale
- Incidence of swimming
- Incidence of skin complication
- Normalized satisfaction scale
- Normalized Pain Scale
- Incidence of unscheduled hospital visit

Methods

- Meta-analysis

Time

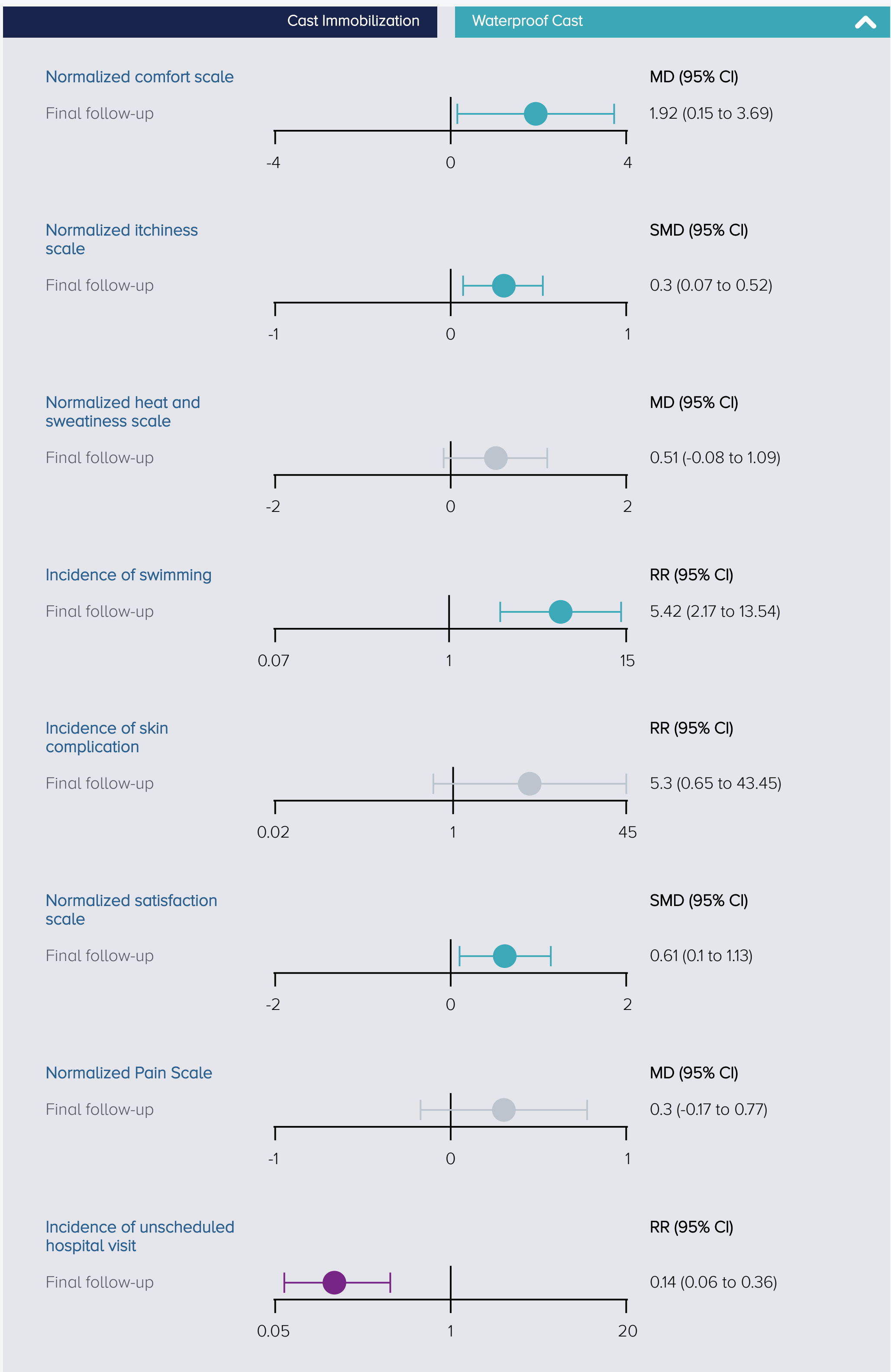
- Final follow-up

Risk of Bias

- ✖ Confidence in the results: Critically Low

What were the important findings?

- Significantly Better
- No Difference
- Significantly Better



MD: Mean Difference; SMD: Standardized Mean Difference; OR: Odds Ratio, RR: Risk Ratio; CI: Confidence Interval

What should I remember most and how will this affect the care of my patients?

Waterproof casts may provide superior comfort, reduce itchiness, and improve satisfaction and function without increasing complications in children with upper limb fractures. These findings support the clinical adoption of waterproof casting as a safe and more patient-friendly alternative. However, the small sample sizes, high risk of bias, and lack of cost-effectiveness data limit the generalizability of the findings.

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