

Efficacy of Distraction Therapy in Reducing Needlestick Pain in Pediatrics: A Scoping Review

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Purpose

The purpose of this DNP project is to determine how distraction therapies compared to nonopioid pain medication affect the patient's pain rating and level of distress and the caregiver's perception of the patient's pain in needlestick procedures in children ages 6 – 12 years old.

Background

Lack of understanding, assessment, and treatment of pediatric pain due to time and resource constraints

Gate Control Theory

- Developed by Melzack & Wall in 1965 studies
- Studies demonstrated barriers (distraction) can control flow of pain by activating nociceptive fibers
- Buzzy device developed based on Gate Control Theory to decrease pain scores for needlesticks (Susam et al., 2018)

Other distraction techniques that have been studied:

- ShotBlocker
- Virtual reality
- Blowing bubbles
- Parental involvement
- Physical and verbal comforting

Barriers to pain management:

- Inadequate pain assessments, lack of understanding of pain
- Time restrictions
- Insufficient awareness of developmental stages and perception to pain
- General concern for prophylactic or therapeutic pharmacological use in children

FEAR & PAIN:

- Combative
- Jerkiness
- Crying
- Resistance

Results in:

- Multiple or failed attempts
- Increased patient pain score
- Increased patient level of distress
- Decreased parental satisfaction
- Increased hospital LOS

How Does Buzzy Work?



5000 Hospitals & Clinics Use Buzzy
10x Faster Than Numbing Cream
50+ Clinical Studies
90% Would Recommend Buzzy

Methods

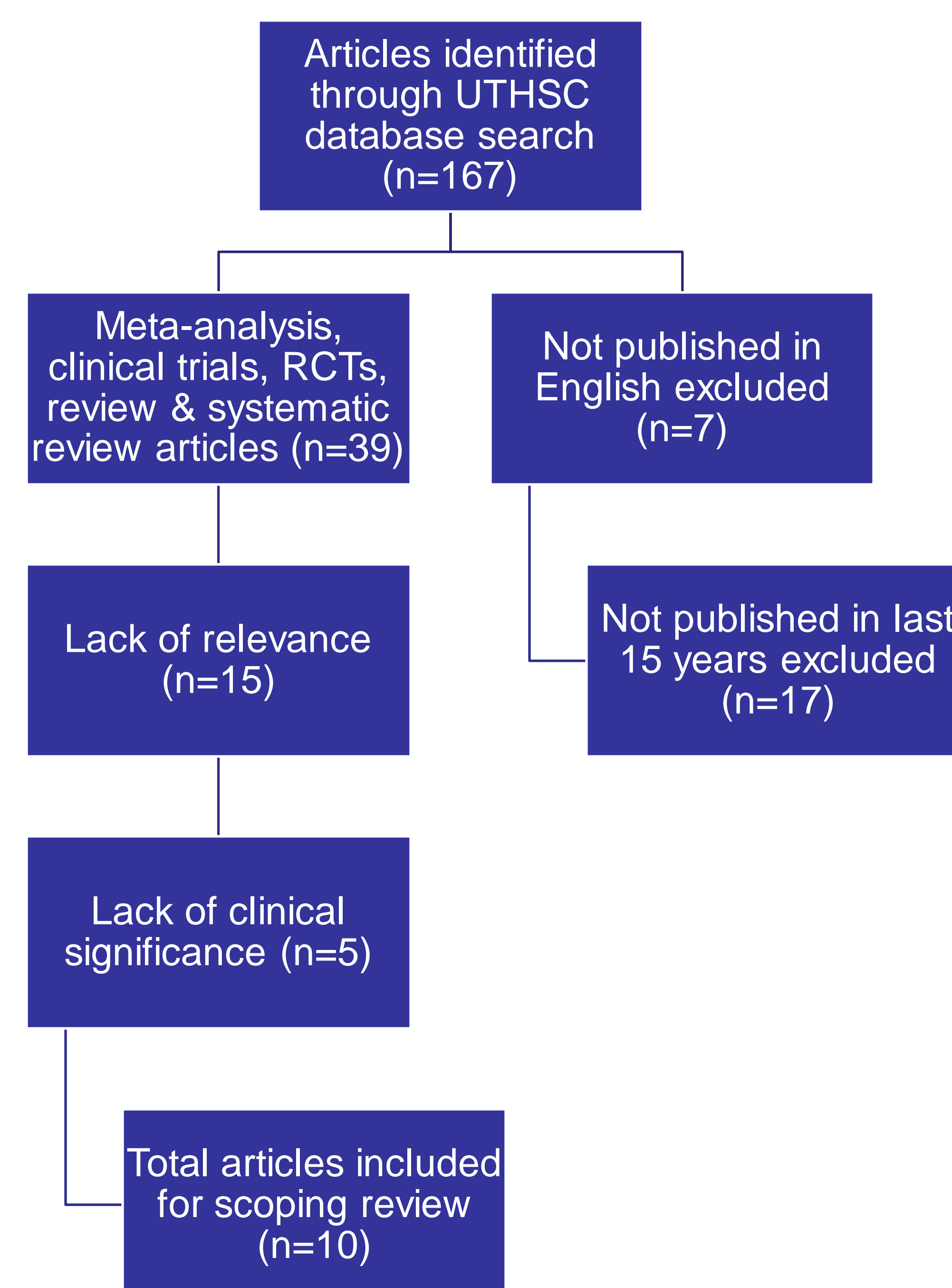
Study Design: Review of UTHSC Library database; studies included meta-analyses, RCTs, and clinical trials

Setting: Multiple pediatric hospitals and outpatient settings

Study Duration: Fall 2020 – Fall 2022

Study Population: Pediatric population ages 6 – 12 undergoing needlesticks (lab draws, IV insertion, IM injections, LPs)

Study Intervention: music, bubble blowing, ShotBlocker, Buzzy, virtual reality, parental involvement, physical



Excel sheet was created to share among group members and all article data was collected.

Categories included on the Excel sheet:

- Patient population
- Procedure performed
- Pharmacological therapy
- Nonpharmacological therapy
- Pain scale used
- Observation scale used
- Standard of care
- Education provision
- Outcome of the study (clinically or statistically significant)
- Additional comments about the article
- Decision to include/exclude article
- Article name
- Full citation

Results

- The most common outcomes and interventions assessed in each article were pain scores, anxiety, parental/patient satisfaction, and staffing distress levels
 - 6 articles demonstrated a reduction in pain
 - 7 articles showed a decrease in anxiety, fear, and distress
 - 5 articles stated an increase in parental and patient satisfaction
 - 2 articles explored the staff's distress levels but more research is needed to assess and conclude the staff's distress levels
- Distraction therapies (compared to nonopioid pain medication) affect pain ratings, level of distress experienced or observed, and the caregiver's perception of the patient's pain
 - 2 studies demonstrated statistical significance in pain reduction with the use of virtual reality devices or music therapy
 - The most common methods used were Buzzy, distraction with technology such as iPad or VR, and parental involvement
 - Other methods implemented included verbal and physical comforting, watching a movie, using the ShotBlocker, and blowing bubbles

	1	2	3	4	5	6	7	8	9	10
Reduced pain score	—	√a	√a	√a	NE	—	1b	√b	√b	NE
Reduced patient anxiety/fear/distress	NE	√a	√a	√a	✓	NE	NE	√b	√b	✓
Parental/patient satisfaction	1a	NE	NE	NE	NE	1	NE	1	1	1
Reduced staff distress	NE	NE	NE	NE	✓	NE	NE	NE	NE	✓

Implications for Practice

- Clinically significant
- Decrease patient pain scores and patient and parental distress
- Increasing patient and parental satisfaction
- Benefits of distraction therapy:
 - Low cost, low complexity → easily accessible
 - Nonpharmacological = no order needed → improved accessibility
 - Staff needs little training on how to implement intervention
 - Implementation of intervention is not time consuming
 - Multiple interventions can be implemented at same time

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