Table 1. Continued

| PICO Question | Study | Intervention | Outcome |
|---|---|---|---|
| | Barker et al,[47] 1994 | Heel puncture vs incision | For larger samples, the incision method demonstrated a shorter collection time, which could reduce pain |
| | Davari et al,[36] 2019 | Effect of the tucking position on pain severity during a heel stick | Although the severity of pain increased significantly during the intervention for both groups, the mean severity of pain did not differ between the groups, which indicated that the tucking position did not significantly decrease the pain intensity compared with the supine position |
| | Erkut and Yildiz,[34] 2017 | The effect of swaddling vs no swaddling during a heel lance on pain, vital signs, and crying | Swaddling reduced the crying time and neonatal infant pain scores and can be used to mitigate pain associated with a heel lance |
| | Gao et al,[39]2018 | Impact of non-nutritive sucking and sucrose alone, and in combination on pain during a heel stick | The combination of sucrose and non-nutritive sucking provided better pain relief than either intervention alone; this combination could be used for repeated pain exposure in preterm infants |
| | Gokulu et al,[50] 2016 | Impact of repeated painful stimuli on the pain response during a heel prick | Infants who received repeated painful stimuli in the first few days of life were more likely to display the pain response to a routine heel prick than infants who were not exposed to the painful stimuli before the heel prick |
| | Gonsalves and Mercer,[33] 1993 | The impact of painful procedures on the physiologic response of infants | Physiologic responses seem to be indices of an infant's response to painful stimuli and, in the absence of crying, may be useful for clinical evaluation |
| | Herrington and Chiodo,[42] 2014 | The impact of a gentle human touch on the pain response across all phases (baseline, warming, heel stick, and recovery) of the procedure | Gentle human touch reduced the pain response across all phases of a capillary blood sampling procedure for heart rate (did not decrease), breathing frequency (did not decrease), and crying time (did not increase) |
| | Hwang and Seol,[45] 2015 | Comparison of the effect of manual vs automatic lancet on pain response | The automatic lancet elicited a lower pain score during the procedure over the use of the manual lancet; it also reduced the number of heel pricks and squeezes as well as the duration of the procedure, which could reduce the pain felt by the infant during the heel prick procedure |
| | Im et al,[37] 2008 | The impact of touch vs non-nutritive sucking vs no intervention on the pain experience during the heel stick procedure | No difference was noted in neonatal infant pain scores score and heart rate among the groups, although $S_{pO_2}$ was better maintained with the touching and non-nutritive sucking interventions |
| | Jain et al,[41] 2006 | The impact of a 2- min leg massage before a heel stick | The application of a 2-min leg massage before a heel stick reduced the neonatal infant pain score and the heart rate, which indicated that the pain may be reduced with this intervention |
| | Leng et al,[38] 2016 | The impact of sucrose vs sucrose and non-nutritive sucking vs sucrose and swaddling vs sucrose, swaddling, and non-nutritive sucking on the pain response during shallow heel stick and deep heel stick procedures | The combination of non-nutritive sucking, swaddling, and oral sucrose was most effective for analgesia during deep heel stick procedures, whereas oral sucrose alone was sufficient for shallow heel stick procedures |
| | Marofi et al,[43] 2015 | The impact of melody on physiologic response to a heel stick | No significant differences in physiologic outcomes were noted between the 2 groups at different points in the procedure (before, during, and after); although the melody could assist in maintaining physiologic balance compared with no intervention |

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