

# The Impact of Negative Pressure Wound Therapy on Healing in Patients post Excision of Pilonidal Sinus. A Systematic Review and Meta-Analysis

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## 1. Introduction

- Pilonidal sinus (PS) is a debilitating inflammatory disease affecting 0.7% of the population, predominantly young males<sup>1</sup>. A burdensome to patients and to the healthcare system<sup>2</sup>.
- The management of PS wounds post-surgical intervention can be very challenging<sup>3</sup>. Negative pressure wound therapy (NPWT) is being increasingly used in complex wounds, to promote wound healing and prevent infection<sup>4</sup>.

## 2. Review Question

What is the impact of negative pressure wound therapy on healing in patients post excision of pilonidal sinus?

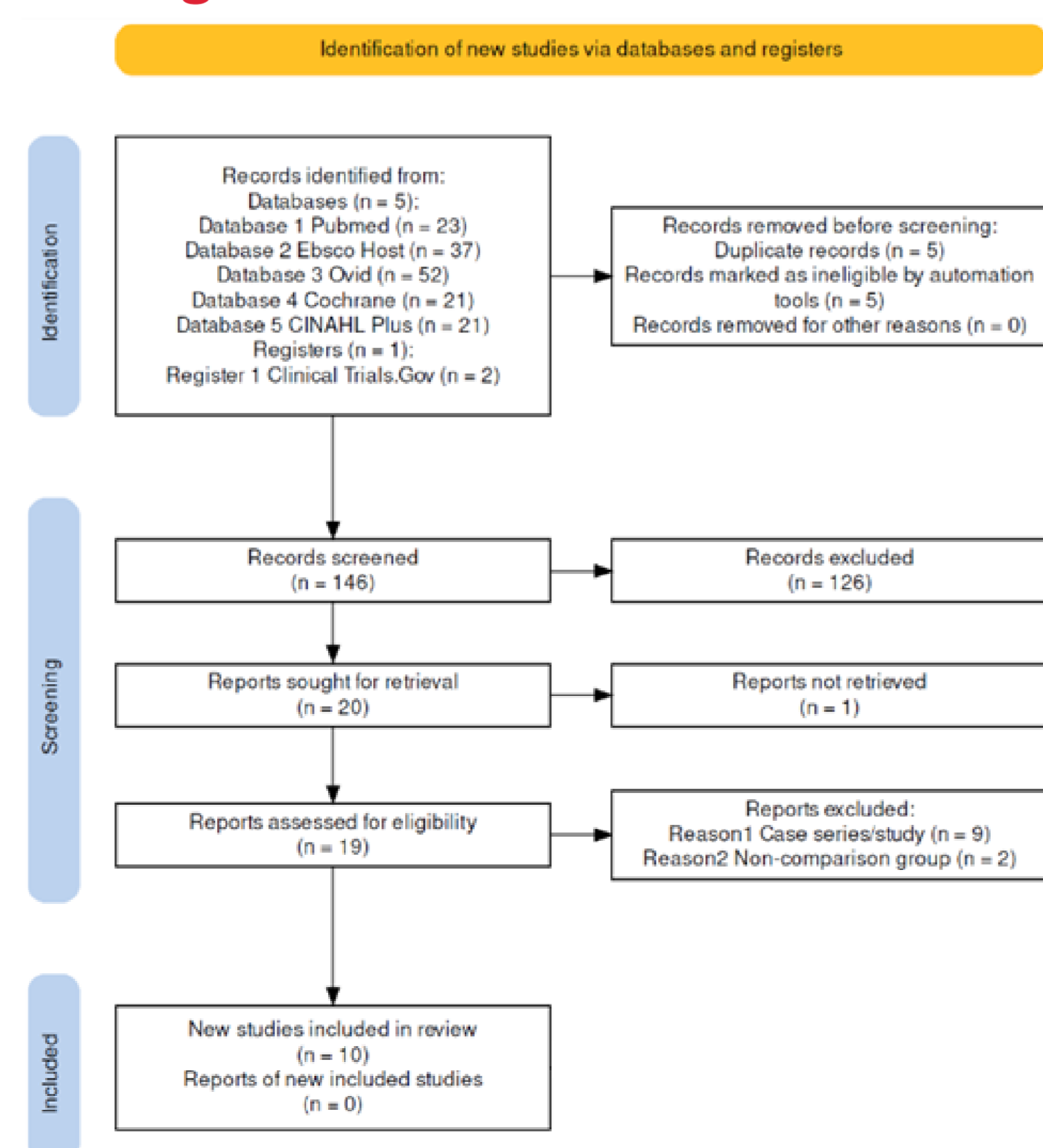
## 3. Methods

- The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines guided the conduct and reporting of the review<sup>5</sup>.
- Five databases and other relevant literature were searched in Jan 2024.
- Quality appraisal was undertaken using the Evidence-based Librarianship (EBL) checklist<sup>6</sup>.
- Data was analysed narratively and using meta-analysis.

## 4. Results

- A total 10 studies were included (Figure 1), with a mean sample size of 61 participants (SD: 33).
- Three studies were randomized control trials, four were retrospective, two were prospective and one was a pre-post test study.
- The mean validity score across all included studies was 63.5% (SD: 18.15).
- Four studies reported wound healing in days in favour of NPWT; Figure 2 indicates that a mean difference of -17.16 was found in two studies ( $p=0.00001$ ). Two studies reported a median reduction in healing time of 9 days ( $p=0.44$ ), and 34.1 days ( $p=0.0000057$ ).
- Figure 3 indicates that a mean difference of -3.28, in favour of NPWT, was found in two studies reporting wound healing in weeks ( $p=0.00001$ ).

Figure 1: PRISMA Flow Chart



## Key Messages

NPWT significantly reduces wound healing time, recurrence rates, pain, and improves patient satisfaction compared to other dressings.

NPWT emerges as a potential management treatment for PS excision wounds, worthily consideration in clinical practice.

Data showed very low certainty of evidence, demanding more high-quality research with larger sample sizes.

## 4. Results (continued)

- One study reported the number of wounds healed, with an odds ratio of 4.57 ( $p=0.07$ ), indicating no statistically significant difference in healing between the two study groups (Figure 4).
- Lastly, one study reported a reduction in wound size by 4.13cm<sup>2</sup> in favour of NPWT.

Figure 2: Forest Plot: Wound Healing in Days

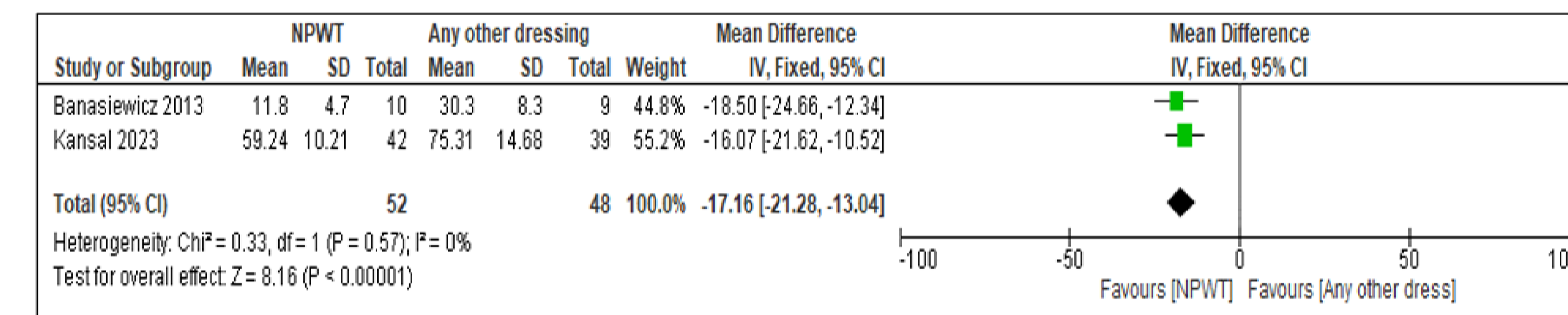


Figure 3: Forest Plot: Wound Healing in Weeks

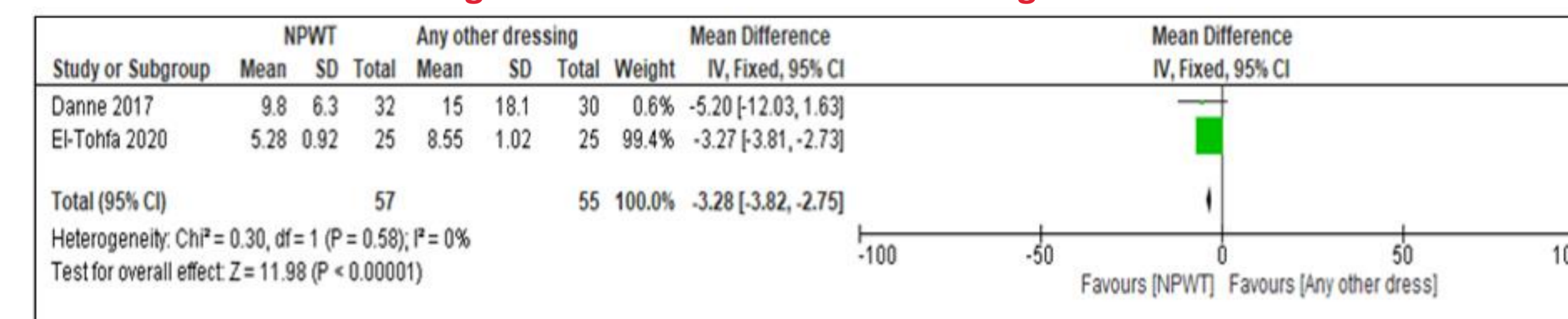
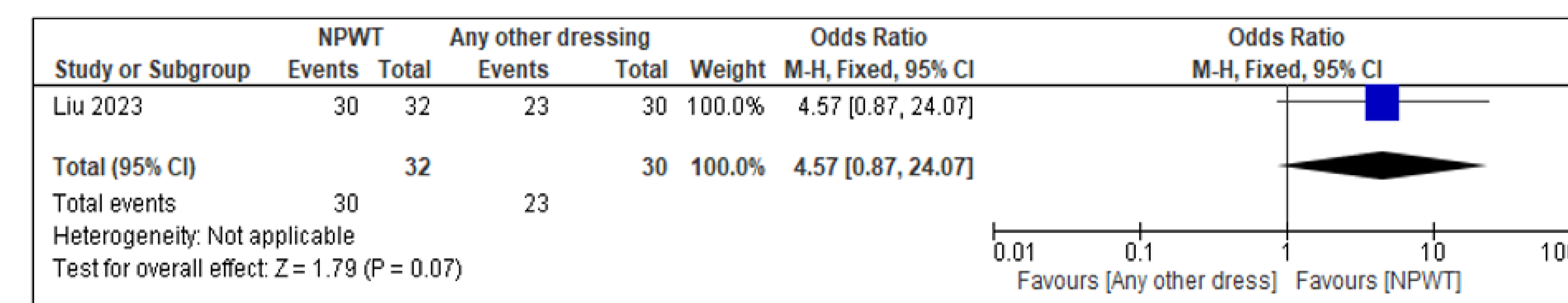


Figure 4: Forest Plot: Number of Wounds Healed



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