



THE EFFECTIVENESS OF HONEY IN REDUCING PAIN IN POST TONSILLECTOMY PATIENTS : A LITERATURE REVIEW

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ABSTRACT

Tonsillectomy ranks among the most frequently conducted surgical operations, however it is frequently accompanied by moderate to severe postoperative pain. Pain management is typically carried out using analgesics, although their use may result in adverse side effects. Therefore, there is a need for safe and effective complementary therapies, one of which is the use of honey. This review aims to examine the effectiveness of honey in reducing pain in post-tonsillectomy patients. The research method employed is a literature review. Relevant literature was searched through databases including Google Scholar, PubMed, Cochrane, and Mendeley between June and August 2025. The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) method was used to guide the article selection process. From an initial 815 articles identified, 6 relevant studies met the inclusion criteria and were analyzed. The majority of studies reviewed demonstrated that honey significantly reduced post tonsillectomy pain compared to standard care or placebo. In addition to pain relief, honey was also reported to promote wound healing and reduce the need for additional analgesics. No serious adverse effects were noted. Based on the reviewed literature, honey effectively reduces pain levels in patients after tonsillectomy.

Keywords: honey; pain; post operative; tonsillectomy

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INTRODUCTION

Tonsillitis is an inflammation of the tonsils, most commonly caused by a viral infection. Transmission typically occurs through saliva droplets expelled when an infected individual coughs or sneezes. In rare cases, asymptomatic carriers may also serve as a source of transmission (Smith et al., 2023). Acute tonsillitis is usually diagnosed based on observable clinical symptoms. Although distinguishing between viral and bacterial causes can be challenging, it is crucial in order to prevent the overuse of antibiotics (Anderson & Paterek., 2023). Chronic tonsillitis remains a major health concern in the field of otorhinolaryngology. The disease may spread and lead to complications through surrounding tissues, the bloodstream, or lymphatic channels. As a result, tonsillectomy (the surgical removal of the tonsils) is often considered the most appropriate treatment option, provided that it is carried out based on proper medical indications, whether absolute or relative (Wiratama et al., 2023).

The World Health Organization (WHO) estimates that there are approximately 287,000 cases of tonsillitis in children under 15 years old undergoing tonsillectomy therapy. Of these, 248,000 children (86.4%) undergo adenotonsillectomy, while the remaining 39,000 (13.6%) receive tonsillectomy alone. According to epidemiological data on otorhinolaryngology in Indonesia, the prevalence of chronic tonsillitis ranks second after acute nasopharyngitis, at 3.8%. The Indonesian Ministry of Health reports that the prevalence of tonsillitis in Indonesia amounts to 214,666 cases, or approximately 23% (Fadya Febyola et al., 2025).

Tonsillectomy is a surgical procedure performed by dissecting the peritonsillar area, specifically between the tonsillar capsule and the tonsillar muscle wall, to remove the entire palatine tonsil

along with its capsule. This procedure can be performed alone or in combination with adenoidectomy, depending on the medical indications (Andwidatu et al., 2025). Although tonsillectomy is generally considered a safe surgical intervention, it still carries risks of various postoperative complications. Common complications include reduced intake of food and fluids, dehydration, painful swallowing, bleeding, infection, and referred pain to the ear (otalgia). Postoperative pain is typically caused by injury to the exposed extracapsular muscles, which subsequently triggers hypersensitivity of the vagus and glossopharyngeal nerve fibers (Yeoh et al., 2024).

Pain is a distressing sensory and emotional experience that arises from actual or the potential threat of tissue damage. Surgical procedures can induce postoperative pain, which in turn triggers physiological and biochemical stress responses. Tonsillectomy may cause severe pain in the throat and ear, as well as trismus (difficulty opening the mouth), until the exposed and inflamed muscles are re-covered by a new mucosal layer (Swain, 2021b). The cause of pain is most likely the disruption of nerve fibers that respond to pain (Wulandari et al., 2023). Uncontrolled postoperative pain can cause complications and negatively impact a patient's quality of life (Permata Sari & Rosyid, 2024). Inadequate pain management can result in patients experiencing persistent pain, particularly during the first few hours after surgery, which may continue for several days postoperatively (Rini Indah Pratiwi & Dian Hudiyawati, 2024).

Postoperative pain is a significant problem frequently experienced by patients after undergoing surgical procedures (Diyanto & Nur, 2021). Both clinical and alternative methods can be used to reduce pain (Hermawan & Rosyid, 2024). Post-tonsillectomy pain management often presents a significant challenge. Despite various interventions, many patients continue to experience poorly controlled pain for a week or longer following the surgical procedure. Effective pain control typically requires a combination of methods, and efforts to identify the most optimal alternative approaches are ongoing. Several alternative methods, such as honey administration, acupuncture, and others, have been studied, with some demonstrating promising results (Jensen, 2021).

Honey has long been used as a nutritional supplement that plays a role in enhancing health (El-Seedi et al., 2022). Honey is a natural substance known to possess antimicrobial and anti-inflammatory properties. Its use in medicine dates back to ancient Egyptian civilization. Honey's antimicrobial properties are mainly due to its elevated sugar concentration, minimal moisture content, and acidic pH levels. Additionally, honey derived from certain floral sources exhibits stronger antimicrobial effects due to the presence of additional compounds, such as hydrogen peroxide in peroxidase-type honey and methylglyoxal in non-peroxidase honey like Manuka honey (Sommerfield et al., 2025). Honey consists of multiple components, primarily sugars (81.3%) and water (17.2%), along with amino acids and a variety of minerals like phosphorus, iron, magnesium, sodium, aluminum, calcium, and potassium (Annisa & Rosyid, 2023). Research by (Swain, 2021a) demonstrated that honey can accelerate wound healing by stimulating the production of inflammatory cytokines from monocytes and keratinocytes. Compounds such as nitric oxide and prostaglandins play crucial roles in the mechanisms of inflammation, microbial elimination, and tissue regeneration. The use of honey has been shown to decrease prostaglandin levels while simultaneously increasing final nitric oxide levels, supporting its effectiveness as a wound healing and antimicrobial agent. Due to its minimal side effects, honey can be considered a safe complementary therapy and is recommended for use alongside analgesics during the recovery period following tonsillectomy. This study aims to review the literature on the effectiveness of honey administration in reducing pain in post-tonsillectomy patients.

METHOD

This study was conducted using a literature review method. A literature review is an evaluation and analysis of various sources such as books, journals, and scientific articles related to the research topic, aimed at building a theoretical foundation and gaining in-depth understanding (Hariyasasti et

al., 2025). Article searches from database Google Scholar, PubMed, Cochrane, and Mendeley were carried out following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. Inclusion criteria for articles were international and national journals related to the administration of honey for post-tonsillectomy pain; full-text manuscripts; articles published in English; and journals published between 2020 and 2025. Exclusion criteria included articles without full-text availability; articles published in languages other than English; studies that were literature reviews or systematic reviews; and journals not relevant to the research topic. The search was performed using the database search engines Google Scholar, PubMed, Mendeley, and Cochrane in July 2025. The keywords used were “Honey,” “Pain,” “Tonsillectomy,” and “Postoperative,” with expanded search terms using “AND” and “OR.” A total of 815 articles were initially identified, followed by screening based on the predetermined criteria. Ultimately, 6 articles were selected.

The search flow is as follows:

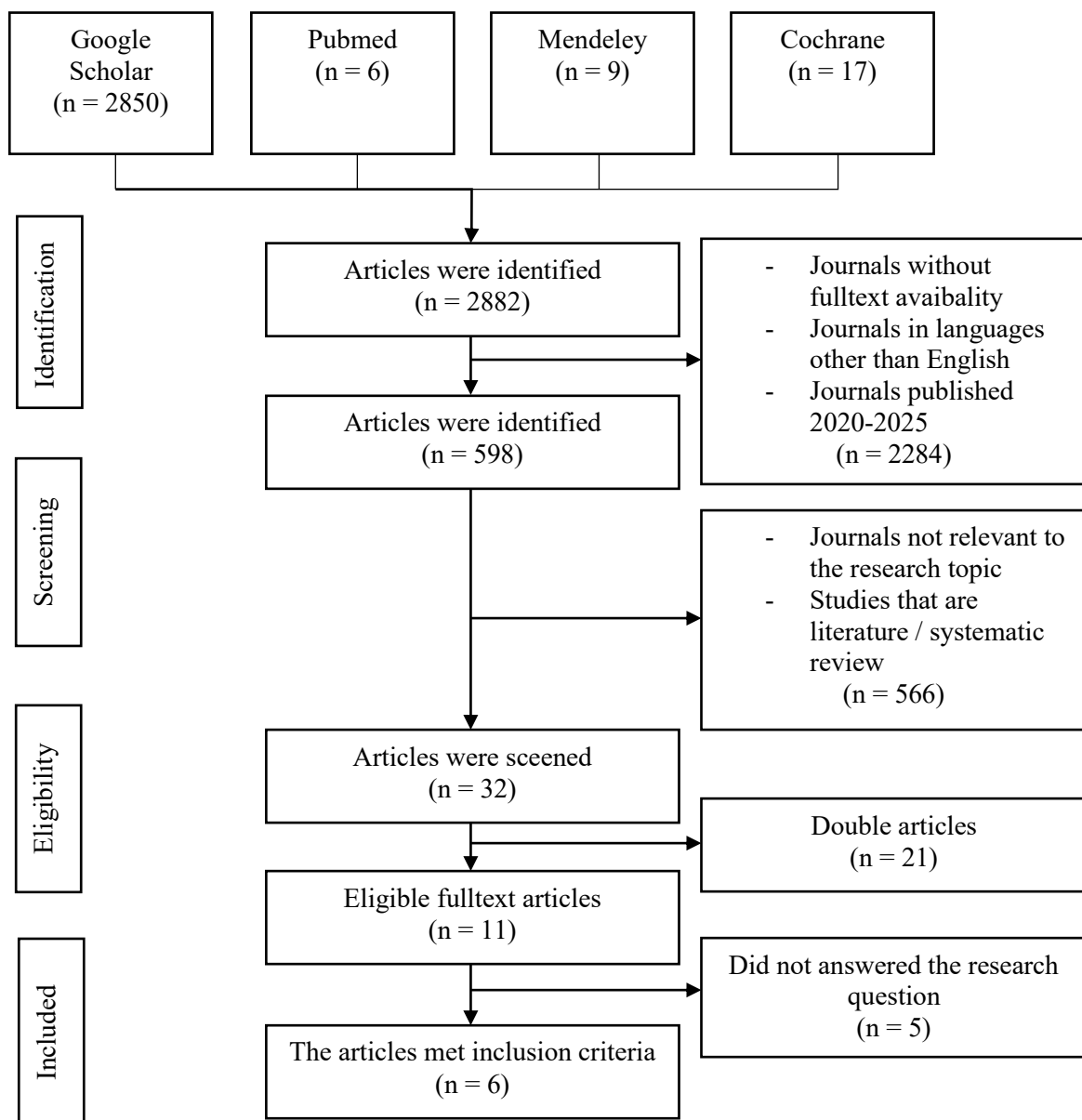


Figure 1. RISMA Flow Chart of Assessment Tools for The Effectiveness of Honey in Reducing Pain in Post Tonsillectomy Patients: A Literature Review

RESULT

Table 1.
Article Search Results

No	Authors and Location	Objective	Method	Result
1	(Geißler et al., 2020) Jerman	This study aims to assess the effectiveness of oral honey as an additional therapy for alleviating pain after tonsillectomy surgery	A single center prospective cohort study was conducted involving 56 patients in the honey group, who were given honey eight times per day, and 18 patients in the control group, who did not receive honey. The baseline analgesia used was nonsteroidal anti-inflammatory drugs (NSAIDs) or coxibs, while opioids were administered as needed (PRN).	Pain levels, both lowest and highest, decreased steadily and more quickly in the group given honey during the five days after surgery. Taking honey orally was more effective in easing pain after tonsil removal
2	(Lubis et al., 2023) Indonesia	To assess the efficacy of honey in controlling pain among patients following tonsillectomy.	This double-blind randomized trial involved 24 male subjects allocated to three groups: honey, placebo, and control. All groups were treated with standard analgesics and antibiotics. The honey group received Ceiba pentandra honey, while the placebo group was given a placebo solution. The control group received only standard postoperative care without any honey or placebo. Administration of honey or placebo was done by rinsing the mouth every six hours for ten days, using the same procedure for both groups.	The group treated with honey demonstrated a more substantial decrease in pain than the placebo and control groups, with statistically significant pain score reductions on days 1, 2, 4, 7, and 10. Postoperative administration of Ceiba pentandra honey may effectively relieve pain and limit analgesic consumption after tonsillectomy.
3	(Dr. Gehan Refat Hefnawy, 2022) Saudi Arabia	The objective of this study is to assess the impact of honey on alleviating postoperative pain and decreasing the amount of analgesics required in children aged 3 to 15 years who undergo tonsillectomy	In this quasi-experimental design, 20 patients in the control group were treated with acetaminophen and antibiotics, whereas the treatment group of 20 patients received the same medications alongside 10 ml of pure honey every 8 hours.	Comparing the two groups revealed that patients treated with honey experienced a shorter average duration to pain relief than those in the control group. Honey demonstrates beneficial effects in diminishing postoperative tonsillectomy pain and reducing the required dosage of analgesics, positioning it as an effective adjunct therapy for improved pain control following surgery.
4	(Raoufian et al., 2020) Iran	This research aimed to assess the comparative impact of rinsing with saline combined with honey and cold saline on pain relief following tonsillectomy or adeno-tonsillectomy in pediatric patients in	A randomized clinical trial was performed with 105 children aged between 5 and 14 years, who were randomly assigned into three equal groups of 35: the honey-saline rinse group, the cold saline rinse group, and the control group. All participants received general anesthesia and the surgeries were conducted by the same surgeon. The honey-saline and	Using either cold saline or saline mixed with honey as a rinse can effectively lessen pain after tonsillectomy or adeno-tonsillectomy, but the combination of saline and honey shows a notably superior effect in reducing postoperative pain.

No	Authors and Location	Objective	Method	Result
		2018.	cold saline groups received mouth rinses every six hours for a duration of 48 hours following surgery.	
5	(Dr. Shaalini S, 2023) India	The purpose of this research is to evaluate how honey influences the frequency and severity of pain following tonsillectomy surgery.	A randomized clinical trial was conducted on 60 post-tonsillectomy patients. Thirty patients in the acetaminophen group received antibiotics (amoxicillin-clavulanate), acetaminophen, and a placebo. Thirty patients in the acetaminophen plus honey group received antibiotics (amoxicillin-clavulanate), acetaminophen, and honey.	The comparison between patients administered only acetaminophen and those given acetaminophen supplemented with honey was statistically significant in both the Visual Analogue Scale (VAS) scores and the amount of pain medication consumed during the first three days postoperatively. Administration of honey after surgery can reduce pain and analgesic requirements in post-tonsillectomy patients.
6	(Sommerfield et al., 2025) Australia	The BEE PAIN FREE study examined the potential benefits of adding honey to multimodal analgesia in enhancing recovery in pediatric patients following tonsillectomy.	A prospective randomized controlled trial was conducted with 400 children divided into four postoperative care groups: a control group receiving standard care, a Marri honey intervention group, a Manuka honey intervention group, and a placebo group. The intervention groups consumed 5 ml of honey or placebo six times daily for a minimum of 7 days, in addition to the standard analgesia provided upon discharge from the hospital.	Providing honey or placebo two to three times a day for seven days, along with pain medications like paracetamol, ibuprofen, and oxycodone when needed, did not significantly improve pain or recovery in kids after tonsil surgery during the 14 days after treatment.

DISCUSSION

Tonsillectomy is a surgical operation that entails the full excision of both palatine tonsils and their capsules through dissection of the peritonsillar space, situated between the tonsillar capsule and the surrounding muscle wall. This procedure carries the risk of several complications, including pain, difficulty in food intake, and delayed resumption of eating and drinking. Among the various possible complications, postoperative pain is the most frequently reported complaint (Yeoh et al., 2024). Pain management is generally categorized into two approaches: pharmacological and non-pharmacological. Frequently used drugs for treatment are acetaminophen, NSAIDs, opioids, and steroids (Hosseini et al., 2025). Honey is considered a non-pharmacological treatment option, which has been supported by various previous studies (Dr. Shaalini S, 2023).

Honey is a concentrated solution containing fructose, glucose, maltose, sucrose, and other carbohydrates, characterized by low water content that prevents the proliferation of harmful microorganisms. Its acidic properties provide antimicrobial effects and can also stimulate the formation of new cells to repair damaged tissue. As a natural therapy, honey is known to offer a range of benefits, including antioxidant, anti-inflammatory, and antibacterial properties, accelerated skin regeneration, and pain-relieving effects (Lubis et al., 2023). Honey can influence anti-inflammatory and immunostimulatory mediators (Puspariny & Cikwanto, 2025). Honey also contains flavonoids, which are compounds that can inhibit the production of cyclooxygenase,

making them effective for relieving pain (Yunyaty Harianja & Septyani, 2021). According to the literature, studies conducted by Dr. Gehan Refat Hefnawy (2022), Dr. Shaalini S (2023), Geißler et al. (2020), Lubis et al. (2023), and Raoufian et al. (2020) have shown that honey administration is more effective in alleviating postoperative pain following tonsillectomy. However, some research has reported that honey does not provide significant results in aiding postoperative recovery after tonsillectomy (Sommerfield et al., 2025).

A study conducted by Geißler et al. (2020) with a single-center prospective cohort design demonstrated that oral administration of honey is more effective in alleviating postoperative pain following tonsillectomy, particularly during the first 2–3 days after surgery when pain peaks. Honey was given orally eight times a day at a dose of 20 grams per administration. Oral honey administration was proven to provide an additional analgesic effect, thereby improving patient comfort and supporting postoperative recovery. Furthermore, honey did not cause any serious side effects, making it a safe option for use as an adjuvant therapy.

A study conducted by Lubis et al. (2023) using a double-blind randomized controlled trial design stated that honey has significant potential as a complementary therapy for reducing postoperative pain following tonsillectomy. The randomized clinical trial results showed a meaningful difference between the honey group and the control group, with patients receiving honey reporting lower pain intensity, especially during the early days of recovery. This indicates that honey not only functions as a natural substance with anti-inflammatory and antioxidant properties but also supports the healing process of the oropharyngeal mucosa injured during surgery.

Supported by the findings of Dr. Gehan Refat Hefnawy (2022), which demonstrated that honey is effective in reducing pain and analgesic requirements after tonsillectomy, making it a viable therapy that requires lower doses of analgesics compared to the control group. Similar results were reported in a study by Dr. Shaalini S (2023), showing that oral administration of honey following tonsillectomy significantly reduced pain compared to the control group receiving only standard therapy. Honey consumption was also associated with a decreased need for analgesics, allowing patients to experience greater comfort without heavy reliance on pain medication.

Additionally, a study comparing the effects of rinsing with cold saline and saline mixed with honey found that the addition of honey to the saline solution provided additional benefits by significantly reducing pain compared to regular saline (Raoufian et al., 2020). This is particularly relevant in the early postoperative phase when patients still experience difficulty swallowing, limiting the oral administration of honey. Therefore, topical application through rinsing may serve as an effective alternative.

The study by Sommerfield et al. (2025) on adult patients generally showed consistent evidence that honey is beneficial in managing postoperative pain after tonsillectomy. However, findings in the pediatric population were more variable. A large multicenter double-blind randomized controlled trial (BEE PAINFREE Trial) demonstrated that the effect of honey in children was not always significantly different from the control group. These differences may be influenced by factors such as children's adherence to honey consumption, variations in pain perception, and the standard analgesic regimens used.

Based on the review of six journals, honey has been shown to have potential as a non-pharmacological adjuvant therapy in reducing postoperative pain following tonsillectomy. Most studies indicate that honey administration, whether orally or topically through rinsing, can decrease pain intensity and reduce the need for additional analgesics. This aligns with honey's biological properties, including its anti-inflammatory, antimicrobial, and antioxidant effects, which can accelerate wound healing and diminish pain responses. Therefore, honey can be considered a safe, affordable, and accessible adjunct therapy for managing postoperative pain after tonsillectomy, particularly during the early postoperative phase.

CONCLUSION

Based on the results of several studies, honey has been proven to help reduce pain in patients after undergoing tonsillectomy surgery. The natural components in honey, such as its anti-inflammatory and antibacterial properties, can aid in accelerating wound healing in the throat and reducing discomfort. Additionally, honey can help patients feel more comfortable, decrease the need for pain medication, and speed up the return to normal swallowing. The side effects of using honey are minimal, making it a safe and easy-to-use adjunct option for postoperative care following tonsillectomy.

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