



The Effect of Hypnosis on Pain Management in Cancer Patients: A Systematic Review

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ARTICLE INFO

Article history:

Received 3th May 2024

Revised 22th July 2024

Accepted 27th July 2024

Available online

<https://talenta.usu.ac.id/IJNS>

E-ISSN: 2685-7162

How to cite: Harahap, I.A. The Effect of Hypnosis on Pain Management in Cancer Patients: A Systematic Review. *Caring: Indonesian Journal of Nursing Science*, 6(1), 37-43.

ABSTRACT

This review article aimed to find current evidence about the effect of hypnosis in reducing pain in cancer patients. The titles and abstracts of relevant articles were reviewed on digital databases, including PubMed, ScienceDirect, and ProQuest, between 2016 and 2021 (last 5 years) using the search terms hypnosis AND cancer pain. The inclusion criteria for this review included English-language research articles with either a Randomized Control Trial, Non-Randomized Trial, experimental design, or case-control with full-text access to a population of cancer patients with hypnosis intervention, and the output was pain. The reviewer has independently evaluated 5 articles; 3 have a Randomized Control Trial design, and 2 are Non-Randomized Trials. The pain was measured using PNRS, VAS, and the combination of PNRS-VAS. 3 articles stated that hypnosis was significantly different between groups in terms of pain, and 2 articles stated no significant difference. In addition, hypnosis therapy also has a beneficial effect on inhibiting all cancer modalities. Different hypnosis methods are used.

Keyword: Cancer, Hypnosis, Hypnotherapy, Pain



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<https://doi.org/10.32734/ijns.v6i1.16179>

1. Introduction

According to the World Health Organization [WHO], cancer is the second most prevalent cause of death worldwide, responsible for 9.6 million deaths and 1 in every 6 deaths (WHO, 2018). The mortality rate in Indonesia was 207,210, with a total of 348,809 cancer cases in 2018. Breast cancer and cervical cancer had the highest incidence rates (WHO, 2020). Pain is the primary apprehension of cancer patients, in addition to death. Pain is defined by the International Association for the Study of Pain as an unpleasant emotional and sensory experience or an indicator of actual or potential injury (IASP, 2017).

Cancer pain is distinct from other forms of chronic pain. Even patients can experience nearly all types of pain during each phase of cancer development, as cancer pain has a complex aetiology (Sofyan et al., 2020). Abnormal cells in cancer will damage the distal portion of free sensory nerve fibres, leading to the fragmentation and discontinuity of nerve cells. Surgery, radiotherapy, and chemotherapy can also induce this nerve fibre damage. This leads to the development of neuropathic pain. Neuropathic pain is the term used to describe discomfort that is a direct consequence of a disease or lesion that affects the somatosensory system. This type of pain can result from pathological damage to nerve fibres in the central nervous system or the peripheral nerves (Knaggs et al., 2012).

Most studies have investigated the use of hypnosis for cancer patients experiencing pain from procedures, surgery, or radiotherapy. Recently published guidelines from the Society for Integrative Oncology (ASCO)

recommend using hypnosis exclusively for procedural or surgical pain in adult cancer patients. It is preferable to administer hypnosis during the procedure rather than in a single session prior to self-hypnosis (Vayne-Bossert, 2024).

A sustainable strategy that is comprehensive with the patient's pharmacological therapy is required despite the complexity of cancer pain. Hypnosis, or hypnotherapy, is one of these measures. Clinical studies have demonstrated that hypnotherapy is effective in managing a variety of psychosomatic symptoms and enhancing the patient's recovery and treatment. For instance, it can reduce pain, anxiety, depression, nausea, and hospitalization (Sharma et al. 2017). Hypnosis is a safe and effective supplement to pharmacologic pain management for cancer patients (Kravits, 2013). Montgomery et al. (2013) first employed hypnosis over two centuries ago. Elkins et al. (2015) distinguish hypnosis as a state of consciousness characterized by an enhanced capacity to respond to suggestion, a reduction in peripheral awareness, and a focus on concentration.

Researchers have extensively investigated hypnosis therapy in the context of a variety of health issues, including fibromyalgia, insomnia, anxiety, irritable bowel syndrome, smoking, labor, migraine, pain, hypertension, and cancer (Satija & Bhatnagar, 2017). This therapy tailors its therapeutic effect to each symptom without restricting amnesia, agnosia, or love. It enables you to demonstrate the treatment while evaluating its correlation with cancer treatment. Patients who expect opioid management to have limited effectiveness may benefit from adding hypnosis to their routine. These people include those who have trouble sleeping at times of pain, persistent anxiety that is directly linked to anticipated pain, and problematic persistent insomnia. Procedures are correlational (Deng et al., 2009).

Research indicates that nearly 90% of patients prefer to employ hypnosis to alleviate their cancer-related symptoms despite its limited use in healthcare environments (Satija & Bhatnagar, 2017). Some individuals perceive hypnosis as a rival to pharmacological therapy when it forms a part of non-pharmacological treatment. Pharmacological and non-pharmacological therapies can enhance the efficacy of patient pain management synergistically and comprehensively, thereby providing patients with advantages. Furthermore, prior research has suggested that hypnosis can enhance the quality of life and extend the life of cancer patients (Fady et al., 2020). Therefore, this review article aimed to find current evidence about the effect of hypnosis in reducing pain in cancer patients.

2. Methods

All included English research articles had a research design of Randomized Control Trial, experimental, or case-control with access type of free full text with the following criteria: The population was cancer patients, the intervention was hypnosis, and the outcomes were about pain. A systemic search of relevant literature by reviewing titles and abstracts was conducted on digital databases, including PubMed, ScienceDirect, and ProQuest, between 2016 and 2021 (last 5 years) using the following search terms: "hypnosis" AND "cancer pain."

3. Results

3.1. Article description

This systematic review included 609 articles; only 7 met the inclusion criteria. Furthermore, during the analysis process, 1 article was found not to measure patient pain, and 1 other article was a pilot study designed to identify the ability of pediatric nurses to perform hypnosis. These two articles were excluded, so the total number of articles reviewed was 5 (Figure 1). 3 articles used a Randomized Control Trial (RCT) design (Amraouli et al., 2018; Etienne, 2021; Mendoza et al., 2017), and 2 articles used a Non-Randomized Trial (Berliere et al. (2021), (2017)). These studies involved 626 respondents with a diagnosis of breast cancer, 513 respondents, and 113 respondents with a general cancer diagnosis (mixed). Table 1 presents a description of the research articles in this review.

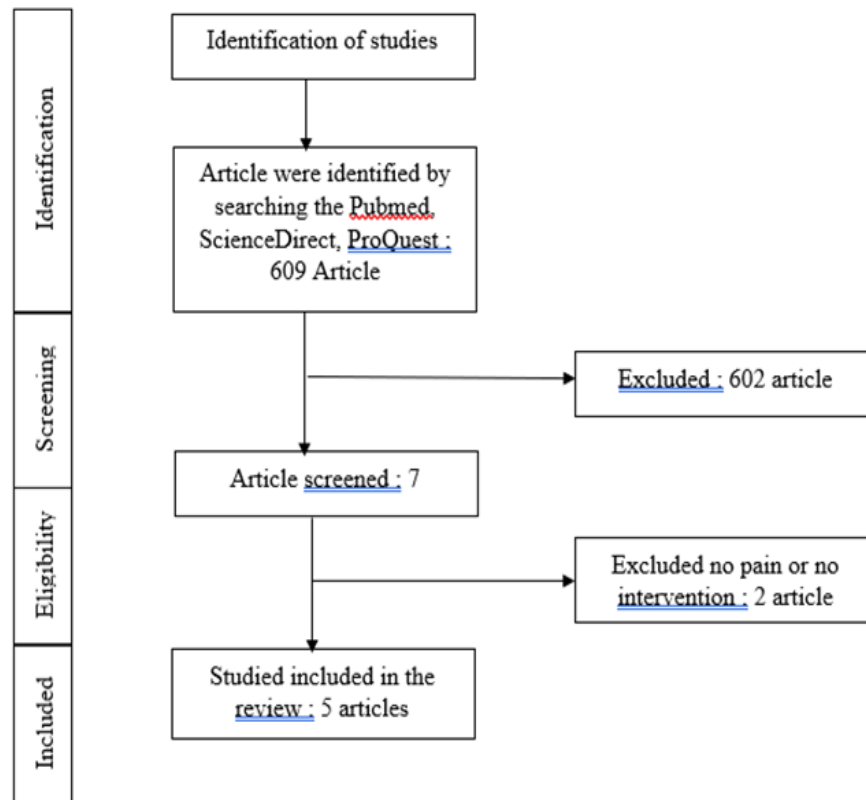


Figure 1. The Flow of Articles Reviewed

3.2. Pain scale measurement

To obtain data on the intensity of pain felt by respondents, several alt measures of pain were used. 2 articles used the Pain Numerical Rating Scale (PNRS) (Etienne 2021, Mendoza et al. 2017), and one article used the Visual Analog Scale (VAS) (Amraoui et al., 2018). Another article found that the author combined more than one type of pain measurement tool, namely PNRS, with VAS (Berliere et al., 2021). PNRS and VAS are instruments widely used to measure pain in the context of research and in the accurate measurement of patient pain intensity in hospitals and clinics. However, there was 1 article did not use any pain measurement alt. This article only assessed the significance of pain complaints, including muscle and joint pain felt by study respondents after surgery and adjuvant therapy (Berliere et al., 2017). This study further explained that the adjuvant therapy provided was radiotherapy, chemotherapy, and endocrine therapy.

3.3. Hypnosis effects on pain

Hypnosis is believed to alleviate pain, enhance pain control, and enhance comfort. Mendoza and colleagues implemented the Valencia Model of Waking Hypnosis with Cognitive-Behavioural Therapy (VMWH-CBT) hypnosis protocol in cancer patients who received active treatment and post-treatment survivors. The results of the study indicated that hypnosis significantly reduced pain intensity ($p = 0.000$), pain interference ($p = 0.038$), and pain catastrophizing ($p = 0.004$) (Mendoza et al., 2017). Berliner and colleagues compared the general anesthesia group and the sedation-hypnosis group. They discovered that the sedation hypnosis group experienced a substantial improvement in their outcomes on days 0, 1, and 8 compared to the general anesthesia group (Berliere et al., 2021). Additionally, hypnosis significantly diminished postoperative pain ($p < 0.05$) and muscle pain ($p < 0.05$) (Berliere et al., 2021). Berliere and his colleagues discovered that hypnosis also effectively decreased the prevalence of muscle and joint pain in a prior investigation (Berliere et al., 2017). Hypnosis is effective in a wide range of acute medical settings. The degree of pain and brain activity in chronic pain patients changes by the direction of the suggestion when they are hypnotized and instructed to experience mild, moderate, or severe pain. This change degree is more significant than mere imagination without hypnotic induction (Derbyshire et al., 2009).

Nevertheless, two studies have failed to identify any evidence of the importance of hypnosis's pain-relieving effects. Amraoui and colleagues conducted a study in the Post-Anaesthesia Care Unit (PACU) room on patients who underwent minor breast cancer surgery. According to Amraoui et al. (2018) they discovered that there was no statistically significant difference between the groups. However, they did identify other

advantages to hypnosis. Etienne and colleagues have also discovered no significant difference in pain scores between the hypnosis and music therapy groups ($p = 0.355$) (Etienne, 2021).

3.4. Other effects of hypnosis

Researchers have found that hypnosis therapy benefits almost all cancer modalities, including fatigue (Amraoui et al., 2018; Mendoza et al., 2017; Berliere et al., 2017), anxiety (Amraoui et al., 2018; Etienne, 2021), distress, depression (Mendoza et al., 2017), asthenia, nausea/vomiting, and radiodermatitis.

3.5. Hypnosis method

Some articles reveal the methods of hypnosis used, while others do not explain the chosen method. This method, known as the Standardised Hypnotic Message Method (Etienne, 2021), is implemented by a certified hypnotist nurse who is also a trainer. The technique entails creating a series of hypnotic messages. The script text of hypnosis contains elements of hypnosis, such as the suggestive tone of voice and rhythm. Taking a stroll alongside a waterfall in a refreshing lake in the Highlands is reminiscent of the therapeutic metaphors in the recording. Hypnosis messages are recorded in a professional studio to optimize quality and minimize background noise.

Patients find the Valencia Model of Waking Hypnosis (VMWH) method (Mendoza et al., 2017) suitable for managing their daily symptoms and complaints. Despite the author's lack of a comprehensive explanation of the steps involved in this strategy, it comprises numerous standardized approaches that are practical, straightforward to comprehend, and easy to implement in everyday situations. Patients can engage in other activities while performing self-hypnosis with their eyes open, which is the primary characteristic of this waking hypnosis technique. It often allows the patient to receive therapeutic recommendations as needed. Depending on the patient's needs, such as sleep issues or weariness, we can employ this model with either activation or relaxation.

Hypnosis Sedation (Berliere et al., 2021) involves administering a local anesthetic solution of 1% lidocaine and 0.25% levobupivacaine before the procedure. The anesthesiologist makes an indirect suggestion by inducing hypnosis after administering oxygen to the patient and ensuring their comfort on the operating table. The anesthesiologist accomplishes this by assessing and observing the patient's behavior. Under the anesthesiologist's supervision, the anesthesiologist advises patients to focus exclusively on their bodies before closing their eyes to achieve complete muscle relaxation. The anesthesiologist speaks in a soothing, monotone voice to help patients relive the dream or experience and maintain their isolation from the real world. One should endeavor to achieve and sustain high comfort and relaxation throughout the process.

Table 1 Research Articles' Description

Author (year)	Participants and venue	Design and Intervention	Outcome	Results
Amraoui et al. (2018) [11]	One hundred and fifty women with postoperative breast cancer Age: 18 and above Venue: 1. Montpellier Cancer Institute (ICM) 2. Montpellier University Hospital, Montpellier, France 3. Paoli-Calmettes Institute, Marseille, France	Design:Randomized Controlled Trial Intervention: 1.No premedication given 2.The hypnosis team gets the patient ready for operation. 3.Short individual hypnosis sessions (≤ 15 minutes) customized for each patient are conducted by trained anesthesiologists 4.The anesthesiologist employs sensory language, paraverbal, and rewording strategies in order to improve the patient's comfort and well-being in accordance with his or her preference for a safe location or recreational activity	Before surgery, right before discharge from the PACU, the night of the procedure, at the time of discharge, and on days 1, 7, and 30 following surgery, the outcome was documented using the VAS (0–10).	There is no significantly difference on pain between group hypnosis and music after breast cancer surgery. Hypnosis has beneficial effects on fatigue and anxiety.

Table 1 Continued

Author (year)	Participants and venue	Design and Intervention	Outcome	Results
Etienne <i>et al.</i> (2021) [12]	Sixty-nine people, 14 men and 55 women. 23: standard group 23: group hypnosis 23: music therapy group Age: average 57.4 years Place: Institut de Cancérologie deLorraine(ICL,Nancy, France).	Design: Randomized Controlled Trial Intervention: 1. A nurse hypnotist creates and delivers hypnosis messages. 2. The script text has several elements typical of a hypnosis session, such as the rhythm and the vocal intonation. 3. Therapeutic metaphors used in recordings	The NRS was used to measure pain at the moment of patch removal, with 0 is no pain and to 10 si unbearable pain.	There is no significant difference on pain between groups. Hypnosis may affects anxiety.
Mendoza <i>et al.</i> (2017) [13]	Forty-four participants, 5 males and 39 females Age: 29-85 years old Place:Post-treatment	Design: Randomized Controlled Trial Intervention: This hypnosis method is based on hypnosis while awake. Patients who are awake and engaged in other tasks can practice self-hypnosis.	Pain intensity was measured using the PNRS 0-10 scale. The 6-item PROMIS was used to quantify pain interference. The Pain Catastrophizing Scale (PCS) was used to quantify the degree of pain catastrophizing.	Pain catastrophizing, pain interference, and pain severity can all be effectively decreased using hypnosis. Hypnosis affects cancer distressand depression
Berliere <i>et al.</i> (2021) [14]	Sixty-three participants Age: average 53 years Place: 1. The Breast clinic (King Albert II Cancer Institute, Cliniques universitaires Saint-Luc-Université catholique de Louvain 2. The Breast Clinic, Hospital de Jolimont	Design: Prospective non-randomized trial Intervention: 1. The patient receives a customized explanation of sedation hypnosis. 2. The procedure is explained to the patient, and the doctor confirms that they are an adequate candidate for this type of analgesia and anesthesia procedure. 3. Premedicated with 0.5 mg of lorazepam an hour prior to surgery. 4. Levobupivacaine 0.25% and lidocaine 1% were used in combination to perform local anesthesia.	Postoperative pain and muscle pain were measured using PNRS and VAS.	Hypnosis significantly reduces muscle pain and postoperative pain. Hypnosis provides an improvement effect on fatigue.
Berliere <i>et al.</i> (2017) [15]	Three hundred female participants with breast cancer surgery Age: average 58-59.5 years Place:The Breast Clinic (Cliniques Universitaires Saint-Luc, Université catholique de Louvain	Design:Non-Randomized Trial Intervention: 1. The preoperative consultation is the first and most important step. 2. The modalities and the path of the entire procedure should be explained by the anesthesiologist. 3. They ought to determine whether the patient is a suitable candidate for hypnotization.	Incidence rate of muscle pain	Hypno-sedation is effective in reducing the incidence of muscle pain. Hypnosis has a beneficial effect on asthenia, nausea/vomiting, and radiodermatitis.

4. Discussion

According to this review article, there are relatively few clinical trials that employ hypnosis to alleviate cancer pain. The evidence that has been identified is insufficient to substantiate the use of hypnosis. The review of numerous research articles revealed that they had a beneficial impact on pain and other pain attributes, including pain catastrophizing and pain interference (Mendoza et al., 2017; Berliere et al., 2021, 2017). The author implemented VMWH-CBT in this instance, as a higher percentage of participants reported substantial symptom improvement after hypnosis (Mendoza et al., 2017.). In the interim, a distinct investigation revealed that the duration of postoperative pain was statistically reduced and that the administration of anti-inflammatory medications was restricted to the first postoperative day (Berliere et al., 2021).

In numerous studies, hypnotherapy has been demonstrated to be an effective nonpharmacological treatment for alleviating cancer pain (Sharma et al., 2017). Hypnotherapy also has advantageous effects on cancer modalities, including anxiety, fatigue, and distress. Hypnosis is employed in the measurement of cancer pain to determine the average pain using VAS, NRS, and PNRs, as it has been shown to reduce pain intensity, pain severity, and pain severity, as indicated by numerous research articles.

Other studies have not found the benefits of hypnosis on pain, despite the findings of the benefits of hypnosis on cancer pain (Amraoui et al. 2018, Etienne 2021). According to an article (Etienne 2021), there is no discernible distinction between hypnosis therapy and therapy. The study's additional findings are not adequately clarified, as readers may desire additional information regarding the advantages of hypnosis compared to conventional therapy or the standard therapy administered.

Even though patients in the hypnosis group reported significantly higher levels of breast pain, this difference in pain did not result in clinically significant levels of ketamine and morphine consumption, even though patients in the PACU had similar needs for analgesia and pain relief (Amraoui et al., 2018). It is imperative to emphasize certain aspects of these studies, such as the fact that the hypnosis protocol utilized on patients is standardized (Etienne 2021, Mendoza et al. 2017, Berliere et al. 2021). Even though the protocol is administered by hypnosis experts who have received specialized training, they are typically already aware of the research hypotheses, which may influence their clinical judgment regarding the anticipated hypnosis outcomes. Additionally, these professionals were accountable for administering therapy to the control and intervention research groups.

In order to mitigate the potential biasing effects of therapist expectations and skills, future research should incorporate a more significant number of therapists, if feasible. Additionally, it is recommended that a universal hypnosis standard be established, if feasible, to enable therapists to employ it as a reference with only minor modifications.

5. Conclusion

Hypnosis is proven to have a beneficial effect on cancer pain, including reducing pain intensity, reducing postoperative pain, reducing pain interference, reducing pain catastrophizing, and reducing the risk of joint and muscle pain occurrence. In addition, hypnosis was also found to have beneficial effects on cancer patient complaints, including fatigue, anxiety, sleep disorders, anesthesia, nausea/vomiting, and radiodermatitis.

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