



COMBINATION OF ICE CUBES THERAPY AND BOOKLET EDUCATION AGAINST THE THIRST OF CONGESTIVE HEART FAILURE PATIENTS: CASE REPORT

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ABSTRACT

Congestive Heart Failure (CHF) often requires fluid restriction, which can cause patients to experience excessive thirst and discomfort. This article describes combining ice-sucking therapy with health education delivered via a booklet to address thirst in CHF patients on fluid restriction. This case report describes a patient with congestive heart failure (CHF) undergoing fluid restriction. The intervention consisted of ice-sucking therapy for 5–10 minutes over three consecutive days, accompanied by health education using a booklet. Thirst was assessed before and after the intervention using a 0–10 Visual Analog Scale (VAS), where higher scores indicated greater thirst intensity. Changes in thirst levels were evaluated descriptively by comparing pre- and post-intervention VAS scores. The VAS score decreased from 8 to 3 after three days of the intervention. The patient also reported reduced thirst, greater comfort during fluid restriction, and moister lip mucosa. The application of ice-sucking therapy, combined with health education via a booklet, reduced thirst levels among CHF patients undergoing fluid restriction. This evidence suggests that combining these two interventions may help alleviate thirst symptoms associated with fluid restriction.

Keywords: congestive heart failure; fluid restriction; health education; ice cube therapy; thirst management

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INTRODUCTION

Congestive Heart Failure (CHF) is a chronic heart condition that poses a serious challenge to the healthcare system because of its high rates of morbidity, mortality, and frequent rehospitalization. This condition arises when the heart cannot pump enough blood to meet the body's metabolic needs, leading to symptoms such as shortness of breath, swelling, weakness, and difficulty performing daily activities (McDonagh et al., 2021). More than 64 million people worldwide suffer from heart failure, and this number continues to rise, driven by a growing elderly population and high rates of cardiovascular risk factors (Savarese et al., 2022; Shahim et al., 2023).

One of the problems frequently reported by patients with congestive heart failure is thirst during fluid restriction. This thirst can be influenced by diuretic use, stimulation of the neurohormonal system, and changes in fluid balance resulting from heart failure (Herrmann et al., 2022). Uncontrollable thirst can cause discomfort and sleep disturbances, making it difficult for patients to adhere to recommended fluid restrictions (Eng et al., 2021). Additionally, persistent thirst is known to affect a patient's ability to self-manage and cope with the disease over the long term (Zheng et al., 2025). Therefore, addressing thirst is critically important in the care of CHF patients who must adhere to fluid restrictions.

Various non-pharmacological methods have been used to reduce thirst in patients with fluid restrictions. One approach is ice-sucking therapy. Cold stimulation in the oral cavity can activate cold receptors in the oropharynx that contribute to thirst regulation, providing a refreshing sensation

and improving patient comfort without significantly increasing fluid intake (Nakaya et al., 2021). A recent systematic review also indicates that various methods of oral cold stimulation can help reduce thirst in patients with fluid restrictions (Wefer et al., 2024). In addition to managing thirst symptoms, health education plays a crucial role in heart failure care by strengthening patients' ability to manage their own care, including adherence to medication, a low-sodium diet, fluid restrictions, and self-monitoring of symptoms (Ayed, 2023). Educational booklets can help patients and families understand health information more systematically and support self-care at home (Cotie et al., 2024).

Although the use of ice cubes and health information provided through booklets can be beneficial in caring for patients with heart failure, the simultaneous implementation of these two methods in patients with heart failure who are restricting their fluid intake has rarely been reported. Inability to cope with excessive thirst can affect patients' well-being and make it difficult for them to adhere to fluid restrictions. Furthermore, family participation in education on heart failure treatment is crucial for supporting decision-making, monitoring the patient's condition, and ensuring continuity of care at home. Therefore, this case report aims to assess changes resulting from the combination of ice cube sucking therapy and health education using booklets, as well as changes in patients' thirst levels and their ability to manage heart failure during fluid intake restriction.

METHOD

The study used a descriptive case report approach, following the steps of the nursing process: assessment, nursing diagnosis, intervention planning, implementation, and evaluation. The study subject was a patient diagnosed with Congestive Heart Failure (CHF) at a Private General Hospital in Central Java. The patient was conscious, clinically stable, and able to swallow well. The patient reported excessive thirst, dry mouth, difficulty breathing during strenuous physical activity, and lower-extremity swelling associated with fluid restriction.

Thirst was measured using a Visual Analog Scale (VAS) ranging from 0 to 10, where 0 indicated no thirst, 1–3 indicated mild thirst, 4–6 indicated moderate thirst, and 7–10 indicated severe thirst. Measurements were obtained on Day 1 (before the intervention) and Day 3 (after the intervention) to assess changes in thirst intensity. Data were analyzed descriptively by comparing pre- and post-intervention VAS scores. Changes in thirst levels were described based on differences in VAS scores and shifts in thirst categories. Clinical observations recorded during the nursing process were also reviewed to support the interpretation of the intervention outcomes. Potential influencing factors, including ongoing medical treatment, adherence to fluid restriction, changes in clinical condition during the observation period, and family support for self-care at home, were considered when interpreting the findings.

The study began on 19 May 2026 with the collection of informed consent, demographic information, and baseline VAS measurements. On the same day, the patient received 30–45 minutes of health education using a booklet on heart failure and fluid restriction. The educational material covered heart failure, signs and symptoms of CHF, the importance of fluid restriction and adherence to a low-salt diet, physical activity, thirst management, monitoring for worsening symptoms, and the family's role in supporting patient care at home. Education was delivered through interactive lectures, discussions, and booklet review based on American Heart Association guidelines, following a method adapted from Nurmajid & Kristinawati (2026).

Ice-sucking therapy was administered for three consecutive days, from 19 to 21 May 2026. The patient was instructed to hold an ice cube in the mouth for 5–10 minutes per session. This therapy aimed to stimulate the oral cavity with cold, thereby increasing moisture in the mucous membranes, providing a refreshing sensation in the oropharynx, and reducing thirst without significantly increasing fluid intake (Tsai et al., 2023). After all intervention sessions were completed on 21 May

2026, VAS scores were reassessed to document changes in the patient's condition during the monitoring period. Changes in the patient's condition are presented in Table 1.

RESULT

Table 1.
Changes in the Patient's Condition Before and After the Intervention

	Before Intervention	After Intervention
Score of thirsty	8	3
Lip Mucosa Condition	Dry	Moist
Subjective Response	Excessive thirst, especially at night; dry mouth; difficulty controlling thirst	Reduced thirst, more comfortable mouth, sensation of freshness after sucking on ice cubes

A decrease in thirst scores on the Visual Analog Scale (VAS) from 8 to 3 after three days of intervention. Additionally, patients reported reduced thirst and increased lip mucosal moisture, and both patients and their families demonstrated greater knowledge of fluid restrictions and heart failure self-care.

The initial examination revealed that the patient had Congestive Heart Failure (CHF) with the main complaints of feeling easily fatigued during activities, mild shortness of breath, swelling in the lower extremities, and excessive thirst due to restricted fluid intake. Mr. B, a 45-year-old man, had a blood pressure of 117/83 mmHg, a pulse rate of 98 beats per minute, a respiratory rate of 22 breaths per minute, and an oxygen saturation of 96%. The patient reported excessive nighttime thirst, dry mouth, and difficulty controlling his thirst. Initial measurements showed a thirst score of 8 on the Visual Analog Scale (VAS).

The patient underwent ice-sucking therapy for 5 to 10 minutes per session over three consecutive days, from May 19 to 21, 2026. The patient and family also received a booklet on heart failure management, including guidelines for fluid restriction. The educational sessions were conducted in person, consisting of a presentation of materials and an interactive discussion lasting 30-45 minutes. During the observation period, the patients' lip mucosa appeared more moist, and they reported reduced thirst and greater comfort during fluid restriction. The patient stated that the cooling sensation from ice cubes provided refreshment and helped reduce thirst, especially at night. Additionally, the patient and their family expressed that the information in the booklet was very helpful in better understanding fluid restriction, a low-sodium diet, medication adherence, and the signs and symptoms of worsening heart failure that require attention.

Based on the assessment results over three days, the patient's thirst score measured using the VAS decreased from 8 on the first day to 3 on the third day. The patient was also able to recall the information provided regarding fluid restriction, strategies to reduce thirst, dietary restrictions, and signs of worsening heart failure. The intervention results showed reduced thirst, increased patient comfort during fluid restriction, and better understanding of heart failure management by the patient and their family. The results of this case report suggest that the combination of ice-chewing therapy and booklet-based education can help patients with heart failure manage thirst and improve adherence to fluid restrictions during the observation period.

DISCUSSION

The results of this case report indicate a decrease in thirst scores among patients with congestive heart failure (CHF) following a three-day combination therapy of sucking on ice cubes and health education via a booklet. Following the intervention, thirst scores measured using the Visual Analog Scale (VAS) decreased from 8 to 3. These conclusions suggest that combining sucking on ice cubes with health education may be a beneficial non-pharmacological approach to help CHF patients manage fluid restrictions more comfortably and effectively.

Thirst in patients with CHF may cause discomfort, especially when they must adhere to fluid restrictions. Fluid restriction in patients with heart failure remains a component of non-pharmacological management. Still, its application requires careful evaluation, as its benefits are not consistently observed and may compromise patient comfort during care (Kato et al., 2024). Fluid restriction, sodium intake, and the patient's clinical condition can also influence the onset of thirst and the patient's adherence to care recommendations (Colin-Ramirez et al., 2024). In this context, complaints of excessive thirst, dry mouth, and an uncontrollable urge to drink are the main issues that must be managed to guarantee patient comfort during fluid restriction.

In this study, sucking on ice cubes was associated with a gradual reduction in patients' thirst complaints over three days of observation. The cold temperature of the ice cubes provides a refreshing sensation in the mouth and throat, helping to reduce thirst without significantly increasing fluid intake. Sucking on ice cubes can help reduce thirst in CHF patients undergoing fluid restriction (Satti & Irwandy, 2024). This cooling sensation helps maintain oral mucosal moisture and provides comfort to patients during fluid restriction. The results of this case report are further supported by the analysis by Chen et al. (2023), which revealed that methods relying on oral stimulation, such as ice cubes, are commonly used to reduce thirst in patients with heart failure undergoing fluid restriction.

Non-pharmacological approaches generally reduce thirst in patients with heart failure. However, the reliability of the available evidence varies. Wefer et al. (2024) indicate that Approaches involving oral stimulation and increased comfort in the oral cavity appear to reduce thirst. In addition to providing a cooling effect, using ice cubes helps alleviate xerostomia, or dry mouth, a condition frequently experienced by CHF patients due to diuretic use and fluid intake restrictions. Cold oral strategies for CHF patients are further supported by the use of frozen strawberries and ice cubes to reduce thirst intensity.

The decrease in VAS scores indicates that using ice cubes can be a simple, safe, low-cost, and easily implementable nonpharmacological intervention in nursing practice. However, the reduction in thirst scores in this case report was generally also influenced by the medical therapy the patient was undergoing, as it can affect fluid status and thirst complaints. Diuretics are an important therapy for patients with CHF and fluid retention, but their use can affect urine output, electrolyte balance, and the patient's thirst sensation (Wu et al., 2024). Thus, changes in the patient's sense of thirst cannot be attributed solely to the ice-sucking therapy but may also be influenced by medications taken and changes in fluid status during the observation period.

In addition to the primary ice-chewing therapy, this case report demonstrates that health education through booklets helps patients and their families understand heart failure care. Patients and families can explain the importance of fluid restriction, a low-salt diet, monitoring worsening symptoms, medication adherence, and managing thirst in the home environment. Booklet-based education can support adherence to a low-sodium diet and fluid restriction in CHF patients, making this resource an appropriate educational intervention for the case report. Non-pharmacological interventions, such as health education, are important for helping patients manage their health independently. The success of heart failure therapy depends heavily on patient consistent self-management; therefore, strengthening self-management skills is a critical step to reduce recurrence rates and the impact of the disease (Kristinawati et al., 2025).

A study by Fazry & Kristinawati (2026) found that pamphlet-based education can improve self-care skills among patients with heart failure, including symptom observation, medication adherence, and responsible disease management. Furthermore, booklets are considered helpful educational tools because they use clear language and easily understandable illustrations and can be read repeatedly

at the patient's convenience. In this case report, the booklet served as a supplementary resource, providing patients and their families with a reference to review after the educational session.

Health education for CHF patients is important because disease management relies not only on medical therapy but also on the patient's ability to perform self-care. Self-care for patients with heart failure includes adherence to therapy, symptom monitoring, dietary management, activity management, and appropriate responses when the condition worsens (Jaarsma et al., 2021). Family participation in education can also help patients adhere to fluid restrictions and recognize signs of worsening. However, family support should be understood as one factor impacting outcomes, not as evidence that all changes are solely due to the intervention provided.

Confounding factors must be considered because this case report involves only one patient and lacks a comparison group. Changes in thirst over the three-day observation period may be influenced by CHF medical therapy, diuretic use, adherence to fluid restrictions, sodium intake, family support, the patient's adaptation to fluid intake limitations, and daily changes in clinical condition. Combination diuretic therapy or adjustments to therapy in patients with heart failure can also affect fluid output, congestion status, renal function, and electrolyte levels; therefore, these factors must be considered when assessing changes in the patient's symptoms (Cuthbert et al., 2024).

The results of this study indicate that ice-chewing therapy, as the primary intervention, and health education using a booklet, as a supportive intervention, have the potential to assist CHF patients who must adhere to fluid restrictions. These interventions are simple, safe, inexpensive, easy to implement, and can be performed independently at home with family support. Although the results show positive effects, the case report's findings require more in-depth analysis, as its structure limits its ability to describe the effectiveness of interventions and broader cause-and-effect relationships. Therefore, additional research is needed with a larger sample size, a longer observation period, and control of various factors that may influence the results, such as the patient's medical care, adherence to fluid restrictions, sodium intake, family support, and the patient's clinical condition. In this way, we can evaluate the intervention's effectiveness and benefits more thoroughly and achieve stronger evidence.

CONCLUSION

Based on this case report, the application of a therapy combining ice cube sucking and health education via a booklet in a patient with heart failure on fluid restriction resulted in reduced thirst throughout the observation phase. This was clear from a decrease in the Visual Analog Scale (VAS) score from 8 to 3 following a three-day intervention. The patient indicated that he understood the information provided, as evidenced by his ability to explain the importance of fluid restriction, a low-sodium diet, adherence to medication therapy, and the symptoms of worsening heart failure.

The findings of this case report suggest that the combination of ice-sucking therapy and booklet-based health education may help reduce thirst and support patient care during fluid restriction. However, these results must be interpreted with caution, as they may be affected by other factors, including the patient's medications, adherence to fluid restrictions, family support, and changes in clinical condition during the observation period. Therefore, patients are advised to adhere to their treatment, follow recommended fluid intake restrictions, involve family members in the healing process, and monitor their clinical condition to support the effectiveness of heart failure therapy.

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