



The Application of Slimber Ice to Reduce Interdialytic Weight Gain in Patients with Chronic Kidney Disease

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Abstract

Introduction: Chronic Kidney Disease (CKD) is a chronic condition that causes progressive decline in kidney function and fluid imbalance. Patients with CKD undergoing hemodialysis are at risk of fluid accumulation during the interdialytic period, characterized by an increase in Interdialytic Weight Gain (IDWG). One non-pharmacological intervention that may help control fluid intake and thirst is Slimber Ice, which involves holding or sucking a limited amount of ice.

Objective: To describe the application of Slimber Ice in reducing IDWG among patients with CKD undergoing hemodialysis with the nursing problem of hypervolemia.

Method: This study used a descriptive method with a case study approach involving two patients with Chronic Kidney Disease (CKD) undergoing hemodialysis in the Hemodialysis Unit of RS TK II 02.05.01 Dr. Ak. Gani Palembang. Both patients were selected based on predetermined inclusion and exclusion criteria. The Slimber Ice intervention was administered at 30 ml for 10 minutes, twice a week, over three sessions. Data were collected through interviews, observations, physical examinations, documentation, and body weight measurements before and after hemodialysis to calculate Interdialytic Weight Gain (IDWG). This study received ethical approval under Number 003051.

Results: The results showed a decrease in IDWG in both respondents. The first respondent had IDWG values of 3.8%, 3.7%, and 3.5%, respectively, while the second respondent had values of 3.8%, 3.5%, and 3.3%. Complaints of thirst and signs of hypervolemia, such as edema and shortness of breath, also improved during subsequent sessions.

Conclusion: The application of 30 ml of *Slimber Ice* for 10 minutes was beneficial in helping reduce IDWG and relieve thirst in patients with CKD undergoing hemodialysis with the nursing problem of hypervolemia.

Keywords: Chronic Kidney Disease, Hemodialysis, Hypervolemia, Interdialytic Weight Gain, Slimber Ice

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INTRODUCTION

Chronic Kidney Disease (CKD) is a major health problem affecting populations in many countries and is associated with an increased risk of mortality. CKD occurs when kidney function declines or becomes impaired for more than three months. This condition causes the kidneys to lose their ability to maintain fluid and substance balance in the body optimally (Sulistyaningsih et al., 2024).

According to the World Health Organization (WHO) (2020), approximately 850,000 people die each year due to CKD, making it one of the 12 leading causes of death worldwide. WHO (2019) estimated that mortality from CKD will continue to increase, reaching 14 deaths per 100,000 population by 2030. The number of people with CKD is also estimated to increase by approximately 6% annually. Approximately 78.8% of patients with kidney disease worldwide undergo dialysis therapy to maintain their survival. Globally, an estimated 5–10 million people die prematurely due to kidney disease (Natasya Putri et al., 2022).

In Asia, the number of adults with CKD is estimated to reach 434.3 million, with approximately 65.6 million at an advanced stage. China has the highest number of people with CKD, estimated at 159.8 million, followed by India with 140.2 million. Together, these two countries account for approximately 69.1% of the total number of adults with CKD in Asia (Liyanage et al., 2022).

In Indonesia, the prevalence of CKD based on the Basic Health Research (Riskesdas) (2021) increased from 2% to 3.8%, representing an increase of approximately 1.8%. With a population of

approximately 252 million, an estimated 500,000 people have CKD (Al Falah Rifqi et al., 2023). West Java recorded 131,846 CKD cases, followed by Central Java with 113,045 cases, while North Sumatra had 45,792 cases. Based on sex, there were 355,726 male patients and 358,057 female patients (Carolina, 2023).

In South Sumatra, the prevalence of CKD reached 0.27%, or approximately 22,013 cases among the population aged over 15 years (Riskasdas, 2018). The increasing number of CKD cases indicates the need for appropriate management to help maintain patients' quality of life. Advanced CKD may require kidney replacement therapy, including hemodialysis and peritoneal dialysis (Roberto Pisoni, Carolyn A. Bauer, Jerry Yee, 2020). Hemodialysis is one of the most widely used therapies, with the number of patients continuing to increase. In Indonesia, the number of patients undergoing hemodialysis increased by 84% over a five-year period, reaching approximately 132,000 patients in 2018 (Wijayanti et al., 2024).

Hemodialysis (HD) is a kidney replacement therapy that uses technology to remove metabolic waste products and excess substances from the blood, including excess fluid, sodium, potassium, hydrogen, and other substances. The process uses a semipermeable membrane to separate blood from dialysate through diffusion, osmosis, and ultrafiltration mechanisms (Wijayanti et al., 2024).

In this context, nurses play an important role in providing comprehensive nursing care, particularly in identifying signs and symptoms of hypervolemia, monitoring fluid status, measuring body weight before and after HD, and monitoring Interdialytic Weight Gain (IDWG). In addition to providing care, nurses also serve as educators by providing health education to patients and families regarding fluid restriction, fluid intake management, and ways to reduce thirst during the interdialytic period. Safe and easy-to-perform non-pharmacological interventions can also be provided to help patients manage thirst and control fluid intake.

A study by Wahyuni et al. (2022) examining the relationship between the duration of hemodialysis and interdialytic weight gain found a strong association between the length of time undergoing hemodialysis and IDWG values in patients with CKD. Patients who had undergone hemodialysis for a longer period tended to have more stable and controlled IDWG values.

METHOD

This study used a descriptive case study design aimed at describing the implementation of application *Slimber Ice* for patients with Chronic Kidney Disease (CKD) and the nursing problem of hypervolemia. The study was conducted from May 18–26, 2026, in the Hemodialysis Unit of Dr. Ak. Gani Hospital, Palembang.

The study subjects consisted of two patients selected based on the inclusion criteria, namely patients who were willing to participate, had CKD with the nursing problem of hypervolemia, underwent hemodialysis twice a week, were aged >18 years, were cooperative, and had an Interdialytic Weight Gain (IDWG) in the mild to moderate category. The exclusion criteria included patients with oral wounds and patients who were unwilling to participate.

The research instruments included an assessment sheet, demographic data sheet, and IDWG observation sheet. The observation sheet was used to determine the IDWG level, categorized as mild (<4%), moderate (4–6%), and severe (>6%).

Data collection was conducted through interviews, observations, and medical record reviews. An initial measurement (pre-test) was then performed to determine the patient's IDWG status before the intervention. After the intervention was completed, a final measurement (post-test) and IDWG observation were conducted to identify changes in the patient's condition.

The data were analyzed descriptively by comparing the patient's condition before and after the implementation of the education. The measurement results were presented as percentages, tables, and narrative descriptions to illustrate changes in the patient's fluid status. This study obtained ethical approval with Number 0035 and applied the principles of informed consent, anonymity, and confidentiality.

RESULTS

This study was conducted in the Hemodialysis Unit of Dr. Ak. Gani Hospital, Palembang, from May 18–26, 2026, involving two patients selected according to the predetermined inclusion and exclusion criteria. Both subjects received the *Slimber Ice* intervention for three sessions over one week.

Table 1.1 Respondent Identity

Characteristics	Respondent 1	Respondent 2
Name	Mr. I	Mrs. J
Age	35 years	66 years
Gender	Male	Female
Religion	Islam	Islam
Education	Senior High School	Elementary School
Occupation	Security Guard	Housewife
Date of Admission	May 18, 2026	May 19, 2026
Date of Assessment	May 18, 2026	May 19, 2026
Medical Record	505xxx	505xxx
Medical Diagnosis	Chronic Kidney Disease	Chronic Kidney Disease
Duration of Hemodialysis	1 year 4 months	6 months

Based on Table 1.1, Respondent 1 (Mr. I) was 35 years old, male, had a senior high school education, and had undergone hemodialysis for 1 year and 4 months. Respondent 2 (Mrs. J) was 66 years old, female, had an elementary school education, and had undergone hemodialysis for 6 months. Both respondents were medically diagnosed with Chronic Kidney Disease (CKD).

Table 1.2 IDWG Observation of Respondent 1 and Respondent 2

No	Date	Dry Weight (kg)	Pre-HD Weight (kg)	Post-HD Weight (kg)	IDWG Classification	IDWG Increase (%)	Blood Pressure	Edema	Shortness of Breath
Day 1	Respondent 1 (Mr. I) Monday, May 18, 2026 (first week)	91 kg	94,6	91,0	Light (<4%) Medium (4-6%) Severe (>6%)	3,8 %	145/81 mmHg	Decreased	Decreased
Day 2	Thursday, May 21, 2026	91 kg	95,9	92,3		3,7 %	144/87 mmHg	Decreased	Decreased
Day 3	Monday, May 25, 2026 (second week)	91 kg	95,7	92,3	Decrease in IDWG	3,5 %	156/105 mmHg	Decreased	Decreased
Day 1	Respondent 2 (Mrs. J) Tuesday, May 19, 2026 (first week)	43	44,7	43,0		3,8 %	148/75 mmHg	Decreased	Decreased
Day 2	Friday, May 22, 2026	43	44,9	43,3		3,5 %	174/103mmHg	Decreased	Decreased
Day 3	Tuesday, May 26, 2026 (second week)	43	45,0	43,5	Decrease in IDWG	3,3 %	156/104mmHg	Decreased	Decreased

Based on Table 1.2, there was a decrease in Interdialytic Weight Gain (IDWG) values before and after the ice cube sucking intervention (Slimber Ice). Although the decrease differed between the two respondents, both demonstrated positive changes following the intervention. The application of Slimber Ice to two respondents with Chronic Kidney Disease (CKD) undergoing hemodialysis showed that this

intervention could help reduce IDWG while also relieving thirst. A decrease in IDWG was observed during the first and second weeks before hemodialysis in both respondents. Therefore, ice cube sucking can be considered a non-pharmacological intervention to help control IDWG in CKD patients undergoing hemodialysis at Dr. Ak. Gani Hospital, Palembang.

DISCUSSION

The results of the Slimber Ice intervention in two respondents, Mr. I and Mrs. J, showed a decrease in Interdialytic Weight Gain (IDWG) after the intervention. Both respondents were patients with Chronic Kidney Disease (CKD) undergoing hemodialysis in the Hemodialysis Unit of TK II 02.05.01 Dr. Ak. Gani Hospital, Palembang. The intervention was carried out as an effort to help control thirst and increased IDWG in the respondents.

The assessment results showed that Mr. I experienced shortness of breath, grade 2 edema in both legs, decreased appetite, and dry lips and skin. Meanwhile, Mrs. J experienced shortness of breath, grade 2 edema, abdominal bloating, decreased appetite, and thirst during hemodialysis. These conditions are consistent with Vaidya and Aeddula (2024), who explained that CKD may be characterized by shortness of breath, edema, fatigue, decreased appetite, dry skin and lips, and disturbances in fluid balance.

Both respondents also had a history of hypertension, with Mr. I having a history of hypertension for five years and Mrs. J for one year. Hypertension is one of the risk factors for CKD. This is consistent with Wahyudi et al. (2022), who stated that hypertension, diabetes mellitus, obesity, family history, and urinary tract infections are among the factors associated with CKD.

The IDWG measurements showed that Mr. I experienced a decrease from 3.8% to 3.5%, while Mrs. J experienced a decrease from 3.8% to 3.3%. Both respondents remained in the mild IDWG category but demonstrated changes after the intervention. These decreases indicate that Slimber Ice may help control IDWG in respondents undergoing hemodialysis.

Slimber Ice is performed by sucking or holding an ice cube in the mouth until it melts, providing a cool and refreshing sensation that can help reduce thirst (Heni Sulistyaningsih, 2024). The results of this study are consistent with Musarofah (2024), who stated that Slimber Ice administration can help reduce IDWG in CKD patients undergoing hemodialysis.

According to the researcher, the decrease in IDWG in both respondents may be associated with reduced thirst following the administration of Slimber Ice, thereby helping to control the desire to consume fluids. This intervention is also easy to perform, does not require special equipment, and can be considered a non-pharmacological option to help control fluid status in respondents undergoing hemodialysis.

However, this study has limitations because it involved only two respondents and was conducted over a relatively short period. Therefore, future studies are recommended to involve a larger number of respondents and a longer monitoring period to obtain stronger evidence regarding the effectiveness of Slimber Ice on IDWG.

CONCLUSION

Based on the results of the study involving two respondents with Chronic Kidney Disease (CKD) undergoing hemodialysis at TK II Dr. Ak. Gani Hospital, Palembang, the administration of 30 mL of Slimber Ice demonstrated a decrease in Interdialytic Weight Gain (IDWG). Therefore, Slimber Ice can be considered a non-pharmacological intervention to help control IDWG and thirst in respondents with CKD undergoing hemodialysis. Respondents are expected to use Slimber Ice as one method to help reduce thirst during fluid restriction. Hospitals and educational institutions may also consider these findings as a basis for developing nursing care and as a reference for implementing non-pharmacological interventions in CKD patients undergoing hemodialysis.

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