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RESEARCH ARTICLE

Effectiveness of Selected Nursing Strategies on Level of Thirst Distress Among Patients Undergoing Hemodialysis

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Abstract: Hemodialysis, a vital treatment for chronic kidney disease (CKD), often brings significant physical and psychological challenges, with thirst distress being one of the most commonly reported yet overlooked symptoms. This quasi-experimental study, conducted from 1st – 28th Jan 2025, aimed to assess the effectiveness of selected nursing strategies in reducing thirst distress among 60 hemodialysis patients from Sangli, Miraj, and Kupwad. Participants were divided into experimental (n=30) and control (n=30) groups using non-probability purposive sampling. Thirst distress was measured across three dialysis sessions using thirst distress scale. Results showed a significant reduction in thirst distress in the experimental group (mean = 6.13, SD = 1.889) compared to the control group (mean = 26.37, SD = 5.881), with a highly significant p-value (< 0.001). These findings support the integration of simple, cost-effective, and non-invasive nursing interventions into routine care to enhance comfort and quality of life for patients undergoing hemodialysis.

Keywords: Effectiveness; Selected nursing strategies; Thirst distress; Thirst distress scale.

INTRODUCTION

In addition to eliminating waste and additional fluid from the circulation, the kidneys serve as crucial organs which additionally regulate electrolytes, ensure acid-base balance, and contribute in blood pressure regulation. Hormones essential for bone health and the manufacturing of red blood cells are generated as well by them. All-around wellbeing relies on healthy kidney function, and any interference can have significant repercussions.[1]A gradual impairment of kidney function is the hallmark of chronic kidney disease (CKD), formerly referred to as chronic renal failure. The kidneys filter waste products and surplus fluids from the circulation, which are subsequently eliminated through urine. In advanced stages of CKD, the body may accumulate hazardous amounts of wastes, fluids, and electrolytes.[2][3]Chronic kidney disease (CKD) stands as the 16th most prevalent cause of mortality worldwide.[4] CKD represents a significant health concern, with a estimated prevalence of approximately 13.4% across all stages, and 10.6% for stages 3 to 5.[5] In India, a systematic review of community-based studies conducted between 2011 to 2023 reported a pooled CKD prevalence of 13.24%, with notable variations across different regions and demographic groups. These figures underscore the urgent need for enhanced prevention, early detection, and effective management strategies to mitigate the growing burden of CKD globally and within India.[6]India sees about 2 lakh new end-stage kidney disease cases annually, needing dialysis or transplant. Specialists stress the need for early detection, regular screenings (such as urine tests, serum creatinine, and kidney ultrasound), and proactive management to reduce complications and improve quality of life.[5]According to the Maharashtra Economic Survey 2024-25, around 28 people are diagnosed with chronic kidney disease (CKD) daily in the state. Between April and December 2024 alone, 7,758 new CKD cases were reported, marking a 13% increase compared to the previous year. [7]Some experts believe the actual burden may be even higher, citing India's high diabetes rates. CKD often goes undetected until late stages, with many patients losing 75% of kidney function before seeking help. Common symptoms like leg swelling are often ignored.[7]

The goal of treatment for chronic renal disease is to minimize the damage to the kidneys, typically by addressing the root cause of the disease. Even effective cause management may not be enough to avoid kidney damage from progressing. If dialysis or a kidney transplant are not performed, chronic kidney disease may give rise to end-stage renal failure, which is lethal. In India, there are approximately around 2.2 lakh fresh cases of end-stage renal disease (ESRD) per year, thereby raises the need for 3.4 crore haemodialysis sessions. The government introduced the Pradhan Mantri National Dialysis Program (PMNDP) as a health program to make renal care services readily available and affordable for BPL (Below Poverty Line) patients given that the high cost of dialysis therapy often ends in financial ruin for the majority of impacted households.[8]For those who suffer from last stage kidney failure, haemodialysis is still a vital life-sustaining treatment, but it comes with an array of physical and psychological side effects. Thirst distress, or the feeling of intense and ongoing thirst, is one of the most common and upsetting symptoms that dialysis patients report. This condition is exacerbated by the strict fluid restrictions that dialysis patients must adhere to in

order to prevent complications such as fluid overload and hypertension.[9] Fluid overload is a significant risk in dialysis patients, as it can lead to heart failure, pulmonary edema, and increased mortality. However, the imposition of strict fluid limits, while necessary, often leads to a paradoxical situation where patients are unable to satisfy their thirst, causing considerable discomfort and distress.[10]

The relationship between thirst distress and dialysis is complex. Studies have shown that the sensation of excessive thirst in these patients is not only linked to the physical limitations imposed by dialysis but is also influenced by psychological factors, such as anxiety and depression. Higher levels of thirst distress were also associated with increased anxiety and a lower quality of life, according to a study by Bailey and Thompson (2018).[9]likewise, persistent thirst discomfort may result in a decline in compliance with fluid limitations, elevating the threat of health risks.[10]Thirst is referred to as "the feeling that pushes people's behavior into the ultimate aim of finding and drinking water" or, more broadly, "any urge that encourages water intake, irrespective of cause". In patients receiving haemodialysis treatment, thirst and xerostomia are the main causes of not adhering to fluid restriction and excessive fluid consumption, which in turn brings about substantial interdialytic weight gain. IDWG ought to be less than 4.5% of the patient's dry weight. Tragically, numerous numbers of people exceed beyond this threshold; some have IDWGs as high than 10% to 20%. Increased morbidity, such as ventricular hypertrophy and significant adverse myocardial and neurological events, as well as an increased risk for heart attack and all-cause mortality, are correlated with elevated IDWG.7Furthermore, more weekly dialysis sessions are frequently required for high IDWG, which degrades quality of life and raises medical expenses. Consequently, a thorough grasp of thirst in chronic haemodialysis patients becomes crucial for putting into practice management techniques that effectively reduce IDWG in standard clinical practice.[7]

MATERIALS AND METHODS

A quantitative, quasi experimental study were conducted at selected hospitals. The aim was to determine the effectiveness of selected nursing strategies on level of thirst distress among patients undergoing hemodialysis at selected hospitals in Sangli Miraj Kupwad corporation area. Ethical approval was obtained from the institutional ethics committee, Bharati Vidyapeeth deemed to be university college of nursing(approvalnumber: BVDU/CON/SAN/594/2024-2025)

The study was conducted at selected hospitals of Sangli Miraj Kupwad corporation area. The study duration was four weeks during January 2025.The study participants were the patients undergoing hemodialysis at selected hospitals of Sangli Miraj Kupwad Corporation area. A total of 60 participants were selected with mild to moderate thirst distress with non-probability purposive sampling technique. Inclusion criteria included. Age group 18 and above. On hemodialysis for atleast once in a week. Having moderate to severe thirst distress. Willing to participate and give written consent. And Exclusion criteria included Emergency hemodialysis and Critically ill patients. Patients who are disoriented. Patients with more than 2000 ml intake. Patients with anuria. A revalidated structured questionnaire was utilized to access the sociodemographic and clinical variables and used thirst distress scale for measuring the level of thirst distress for three consecutive cycles of hemodialysis.

A pre-validated questionnaire was utilized for data collection, the tool had two sections. Section I contained Demographic variables and Clinical variables such as age, gender and clinical variables like presences of comorbidities, frequency of dialysis per week, duration of dialysis, prescribed water intake. Section 2 contained Thirst Distress scale for measuring the level of thirst distress

In this study the investigator measured the level of thirst distress in patients undergoing hemodialysis by using thirst distress scale. The scale is scored in a range from 1-5 with following five criteria's i: e always, often, sometimes, rarely, never of which the scores are assigned as 5,4,3,2,1. The reliability of the tool was established by the internal consistency using Cronbach alpha which was 0.715.the data was collected using the validated tool during 3 consecutive hemodialysis sessions. For the analysis of demographic and clinical data, frequencies and percentages were calculated and the effectiveness was measured with paired and unpaired t test.

RESULTS

TABLE: 1 Frequency and percentage distribution of demographic data, n = 30+30=60

Sr no	Variable	Groups	Experimental		Control	
			f	**%**	**f**	**%**
1	Age group (In years)	<=50	14	46.67	16	53.33
		>50	16	53.33	14	46.67
2	Gender	Male	25	83.33	24	80

		Female	5	16.67	6	20

In the experimental group the majority(53.33%) of participants were below 50 years of age and in control group the majority (53.33%) participants were below 50 years. Regarding gender distribution most of the participants in both the groups were males (83.33%) in the experimental and (80%) in control group.

TABLE:2 Frequency & Percentage distribution of the clinical data. n = 30+30=60

Sr no	Variable	Groups	Experimental		Control	
			f	%	f	%
1	Comorb -idities	Hypertension	14	46.67	16	53.33
		DM+HTN	10	33.33	3	10.00
		Hyperthyroidism	1	3.33	0	0.00
		None	5	16.67	11	36.67
2	No of HD in a week	Twice	22	73.33	28	93.33
		Thrice	8	26.67	2	6.67
3	Duration on HD	3months	3	10.00	1	3.33
		6 months	5	16.67	8	26.67
		12 months	1	3.33	1	3.33
		> 12 months	21	70.00	20	66.67
4	Advised water Intake per day	500 ml	19	63.33	1	3.33
		1000 ml	11	36.67	26	86.67
		1500 ml	0	0.00	3	10.00

A majority of participants in both groups underwenthemodialysis twice a week (73.33%) in experimental group majority and (93.33%) in control group. Regarding dialysis duration for more than 12 months (70%) participants in experimental group compared to (66.67%) in control group. In terms of prescribed fluid intake (63.33%) participants in the experimental group were advised to limit the fluid intake to 500 ml per day. While (86,67%) participants in control group were advised up to 1000 ml water intake per day. Before intervention all (100 %) participants in the experimental group experienced a moderate level of thirst distress. In the Control group (93.33%) participants reported moderate level of thirst distress and 6.67% had experienced a severe level of thirst distress.

TABLE 3 Comparison of pre-test and post-test 3 level of thirst distress scores

Statistical measurements	Experimental group		Control group	
	Pre-test	Post-test 3	Pre-test	Post-test 3
Mean	29.87	16.13	25.9	26.37
Standard Deviation	5.947	1.889	6.172	5.811
Paired t value	15.014		- 0.679	
P value	< 0.001		0.503	
Significance	Significant		Non-significant	

Above table reveals that in the experimental group, the pretest mean thirst distress score was 29.87 with a standard deviation of 5.947 while the post-test 3 mean score decreased significantly to 16.13 with a standard deviation of 1. 1889.The paired t-test value was 15.014 and p value was less than 0. 001.The control group had a pretest score of 25.9 with a standard deviation of 6.172 and post-test 3 mean score of 26.37 with a standard deviation of 1.074. The paired t-test value was -0.679 with a p value of 0.503, suggesting no statistically significant changes in the thirst distress levels overtime in the absence of intervention.

Note: post-test 1= post-test after 1st cycle of hemodialysis, Post-test 2= post-test after 2nd cycle of hemodialysis, Post-test 3= post-test after 3rd cycle of hemodialysis

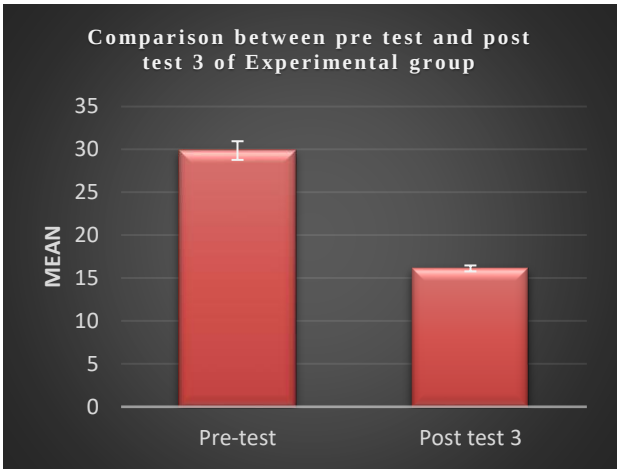

Figure no.1: Frequency distribution of comparison of thirst distress scores in Pretest and Posttest-3 of experimental and control group.

TABLE NO :4 Comparison of posttest-3 level of thirst distress score in Experimental & Control group.

Statistical measurements	Posttest 3	
	Experimental group	Control group
Mean	16.13	26.37
Standard Deviation	1.889	5.881
Unpaired t value	-9.074	
P value	< 0.001	
Significance	Significant	

Note: post-test 1= post-test after 1st cycle of hemodialysis, Post-test 2= post-test after 2nd cycle of hemodialysis, Post-test 3= post-test after 3rd cycle of hemodialysis

The table demonstrates that in post-test: 3 The experimental group's mean score was 16.13, with a standard deviation of 1.889. The control group had a mean score of 26.37 with a standard deviation of 5.881, an unpaired t-value of -9.074, and a p-value of < 0.001. Following the third post-test, there was a statistically significant difference in the mean thirst distress scores of the experimental and control groups, with the experimental group scoring significantly lower. As a consequence, the null hypothesis is rejected, while the alternative hypothesis is accepted.

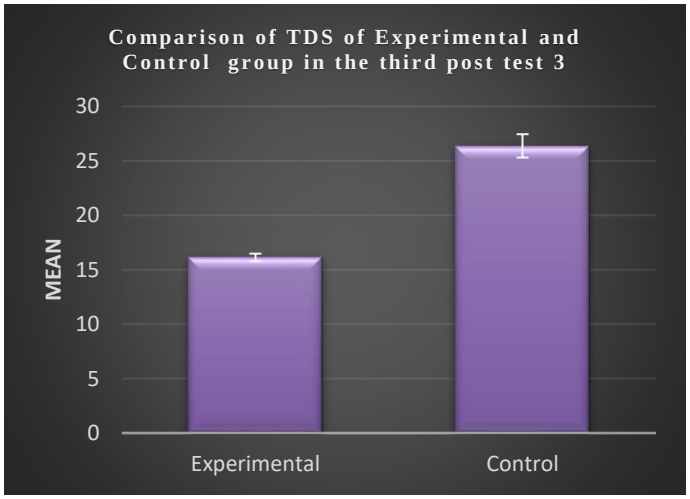

Figure no.14: Frequency distribution of comparison of thirst distress scores in Posttest-3 of experimental and control group.

DISCUSSION

Demographic characteristics.

- In the experimental group the majority (53.33%) of participants were below 50 years of age and in control group the majority (53.33%) participants were below 50 years. Regarding gender distribution most of the participants in both the groups were males (83.33%) in the experimental and (80%) in control group.
- The above findings are similar to a study conducted by Thangjam Sarjubala Devi (et al) to assess the effectiveness of selected nursing strategies on level of thirst distress among patients undergoing hemodialysis (2021) data depicts that the majority of the subjects in the experimental group (63.3%) and in control group (60%) were males.[11]

Clinical profile of patient.

- In the experimental group (46.67%) of participants had history of HTN, while in Control group (53.33%) reported the same.
- The above findings are similar to the study conducted by Ms. N. Sweetha1(et al) to assess the effectiveness of comprehensive nursing strategies on level of thirst distress among chronic kidney disease clients during hemodialysis, at selected hospital of Puducherry (2024) regards to family history of chronic illness, 37 (74%) had hypertension.[12]
- A majority of participants in both groups underwent hemodialysis twice a week (73.33%) in experimental group majority and (93.33%) in control group. Regarding dialysis duration for more than 12 months (70%) participants in experimental group compared to (66.67%) in control group. In terms of prescribed fluid intake (63.33%) participants in the experimental group were advised to limit the fluid intake to 500 ml per day. While (86,67%) participants in control group were advised up to 1000 ml water intake per day. Before intervention all (100 %) participants in the experimental group experienced a moderate level of thirst distress. In the Control group (93.33%) participants reported moderate level of thirst distress and 6.67% had experienced a severe level of thirst distress.

Effect of nursing strategies on level of thirst distress

- In the experimental group the posttest 1 showed that (90%) of participants experienced moderate level of thirst distress, in post-test 2 majority (66.67 %) of participants had mild level of thirst distress and in post-test 3 majority (96.67%) of participants had improved to mild level of thirst distress. In contrast the control group showed little change over time, In the post-test 1(93.33%) of participants still experienced moderate level of thirst distress. In the post-test 2 and posttest 3 (90%) of participants continued to report moderate level of thirst distress afterwards indicating a highly significant reduction in thirst distress following the implementation of selected nursing strategies.
- In the experimental group, the pretest mean Thirst Distress score was 29.87 with a standard deviation of 5.947 while the posttest 3 mean score decreased significantly to 16.13 with a standard deviation of 1.889.The paired t-test value was 15.014 and p value was 0.01,The Control group had a pretest mean score of 25.9 with a standard deviation of 6.172 and posttest 3 mean score of 26.37 with standard deviation of 1.074.The paired t test value was t was -0.679 with a p value of 0.503.Suggesting no statistically significant changes in the thirst distress levels overtime in the absence of intervention.
- The above findings are similar to a study conducted by Thangjam Sarjubala Devi (et al) to assess the effectiveness of selected nursing strategies on level of thirst distress among patients undergoing hemodialysis (2021) revealed that the mean thirst distress scores were decreased from 23.23±2.59 on pretest to 15.77±2.28 on the 2nd posttest after 4th cycle of hemodialysis in experimental group. But, in the control group mean thirst distress scores were almost similar on all the measurements with a slight increase on the second posttest. There was statistically significant difference (P= 0.000) in the thirst distress scores of subjects in experimental group.[11]

Comparison between experimental and control group

- A comparison of posttest 3 scores between groups revealed a mean score of 6.13 with standard deviation 1.889 in the experimental group and 26.37 with a standard deviation 5.881 in the control group. The unpaired t-test value was -9.074 with a p value of < 0.001 indicating a statistically significant difference between the two groups after the third post-test these findings lead to the rejection of the null hypothesis and acceptance of alternative hypothesis supporting the effectiveness of nursing strategies use.
- These findings were similar to a study on effect of comprehensive nursing strategies on thirst distress management among the patients with chronic kidney disease conducted by Swapnil Rahane(et al)(2022) which depicts that in

experimental group mean value was 2.8 and control group mean value was 4.68 which was higher than experimental group mean difference so hence it was proved that, the comprehensive nursing strateges were highly effective in improving thirst distress among patients with chronic kidney disease.[13]

CONCLUSION

This research investigated how well certain nursing led strategies worked in reducing patients thirst discomfort while they were receiving haemodialysis. The statistical analyses revealed that the experimental group experienced a significant reduction in thirst distress levels after receiving the nursing interventions. A substantial improvement in their condition was shown by post-test 3 mean score, which dropped from 29.87 on the pre-test to 16.13. Nonetheless, the control group's mean scores remained quite close between the pre-test (25.9) and post-test 3 (26.37), indicating no significant shift in their levels of thirst distress. The intervention's efficacy was further supported by the unpaired t-test findings, which showed a significant difference among both the groups at the 0.05 significance level. Therefore, the study concludes that selected nursing strategies are effective in reducing the thirst distress in hemodialysis patients. This evidence supports the implementation of such interventions.

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