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Effectiveness of A Self-Instructional Module on Knowledge and Attitude Regarding Prevention of Chronic Kidney Disease Among Hypertensive and Diabetic Patients in Selected Rural Areas of Dindigul District

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Abstract:

Background: Chronic kidney disease (CKD) is a progressive condition associated with diabetes mellitus and hypertension. Limited awareness of CKD risk factors, warning signs and preventive measures may delay early detection and appropriate self-care. Aim: To evaluate the effectiveness of a self-instructional module on knowledge and attitude regarding prevention of CKD among hypertensive and diabetic patients in selected rural areas of Dindigul district, Tamil Nadu. **Methods:** A quantitative evaluative approach with a quasi-experimental, non-randomized pre-test–post-test control-group design was used. Sixty patients aged 50–60 years were selected by purposive sampling: 30 in the experimental group from T. Pudupatti and 30 in the control group from K. Alathuranpatti. Data were collected using a demographic and clinical proforma, a 40-item structured knowledge questionnaire and a 25-item attitude scale. The self-instructional module was provided to the experimental group, and both groups were reassessed after 14 days. **Results**: In the experimental group, mean knowledge scores increased from 17.2 (SD 4.6) to 31.3 (SD 5.6) (mean difference 14.1; paired t=16.7), and mean attitude scores increased from 35.1 (SD 12.6) to 81.2 (SD 12.4) (mean difference 46.1; paired t=23.2). In the control group, knowledge changed from 17.0 (SD 5.0) to 17.5 (SD 4.9) (t=0.9), while attitude changed from 36.0 (SD 11.1) to 34.1 (SD 10.4) (t=1.5). Between-group post-test comparisons were reported as significant for knowledge (t=10.1) and attitude (t=15.9). The reported post-test knowledge–attitude correlation was r=0.50 in the experimental group and r=0.036 in the control group. **Conclusion:** The findings suggest that the self-instructional module was associated with improved CKD-prevention knowledge and more favourable attitudes in the experimental group. Several numerical and labelling inconsistencies in the source dissertation require verification before submission.

Keywords: guided imagery; pregnancy-induced hypertension; blood pressure; stress; antenatal mothers; nursing intervention.

INTRODUCTION

Chronic kidney disease is a progressive disorder characterized by persistent kidney damage or reduced kidney function. Diabetes mellitus and hypertension are important risk factors because persistent hyperglycaemia and elevated blood pressure can damage renal structures and accelerate loss of kidney function. Early CKD may be asymptomatic; therefore, awareness of risk factors, screening, medication adherence and preventive practices is important among people living with these conditions.

Knowledge of kidney disease and its prevention may influence patients' willingness to monitor blood pressure and blood glucose, attend follow-up appointments, undergo renal function testing and adopt appropriate lifestyle practices. A structured self-instructional module can provide consistent information in an accessible format. The present study examined the effect of such a module on CKD-prevention knowledge and attitudes among hypertensive and diabetic patients in rural Dindigul district.

Aim and Objectives

•To assess pre-test and post-test knowledge and attitude regarding CKD prevention among hypertensive and diabetic patients in the experimental and control groups.
•To evaluate the effectiveness of the self-instructional module on knowledge and attitude in the experimental group.
•To determine the correlation between post-test knowledge and attitude scores in the experimental and control groups.
•To examine associations between pre-test knowledge and attitude levels and selected demographic and clinical variables in both groups.

Methods

Study design and setting

A quantitative evaluative approach and quasi-experimental, non-randomized pre-test–post-test control-group design were used. The study was conducted in T. Pudupatti and K. Alathuranpatti villages in Dindigul district, Tamil Nadu. T. Pudupatti was the experimental-group setting and K. Alathuranpatti was the control-group setting.

Participants and sampling size

The sample comprised 60 patients aged 50–60 years, with 30 participants in each group. Non-probability purposive sampling was used. The inclusion criteria specified both genders, ability to understand and speak Tamil, availability during data collection, and a diagnosis of hypertension and/or diabetes mellitus for more than one year with reports. The dissertation lists exclusions relating to age outside the specified range, risk of complications, irregular follow-up, absence of a medical diagnosis and newly detected borderline conditions.

Measures

The instrument included demographic variables, clinical variables, a 40-item structured knowledge questionnaire and a 25-item Likert attitude scale. Knowledge items were scored 1 for a correct answer and 0 for an incorrect answer. Knowledge levels were classified as inadequate (1–13), moderate (14–26) and adequate (27–40). The attitude scale used a 0–100 score, with the reported bands of 76–100, 51–75, 26–50 and 0–25. The results tables label these categories positive, neutral, negative and very negative, respectively.

Intervention and data collection

Baseline demographic and clinical information, knowledge and attitude were assessed in both groups. The self-instructional module was administered to the experimental group and explained for approximately 30 minutes, followed by a 15-minute discussion. The control group received no study intervention during the comparison period and continued routine activities. The same knowledge and attitude instruments were administered after 14 days.

Validity, reliability and pilot study

The tool was reviewed by seven experts (five nursing experts and two medical experts), according to the dissertation. A pilot study involving 10 participants was conducted in Sirunayakanpatti village to assess feasibility. The dissertation states that the pilot indicated feasibility, but it does not provide a reliability coefficient; this information should be supplied if available.

Statistical analysis

The dissertation reports permission from the concerned village panchayat union presidents, oral informed consent and assurance of confidentiality. The name of an institutional ethics committee, approval number and approval date were not identified. Descriptive statistics included frequency, percentage, mean and standard deviation. Inferential analyses included paired t-tests, independent t-tests, correlation coefficients and chi-square tests. The statistical software and exact p-values were not consistently specified.

RESULTS

A total of 60 participants were included, with 30 in each group. Tables 1–3 summarize participant characteristics and categorical outcome levels. Tables 4–6 present the principal inferential findings. All numerical values below are transcribed from the source dissertation; identified inconsistencies are noted rather than silently corrected.

Table 1: Frequency and percentage distribution of demographic variables (N=60)

Variable	Category	Experimental group (n=30), n (%)	Control group (n=30), n (%)
Age (years)	50–55 years	16 (53.33)	18 (60.00)
	56–60 years	14 (46.67)	12 (40.00)
Gender	Male	18 (60.00)	22 (73.33)
	Female	12 (40.00)	8 (26.67)
Educational status	Illiterate	18 (60.00)	20 (66.67)
	Primary education	4 (13.33)	6 (20.00)
	Secondary education	3 (10.00)	2 (6.67)
	Graduate	5 (16.67)	2 (6.67)
Occupation	Farmer	8 (26.67)	6 (20.00)
	Coolie	7 (23.33)	9 (30.00)
	Government employee	12 (40.00)	9 (30.00)
	Self-employed	3 (10.00)	6 (20.00)
Marital status	Married	23 (76.67)	21 (70.00)
	Unmarried	4 (13.33)	6 (20.00)
	Divorced	2 (6.67)	2 (6.67)
	Widow	1 (3.33)	1 (3.33)
Personal habits	Smoking	8 (26.67)	9 (30.00)
	Alcohol	12 (40.00)	7 (23.33)
	Other tobacco products and others	8 (26.67)	8 (26.67)
	None of the above	2 (6.67)	6 (20.00)
Monthly income	Below 5,000	2 (6.67)	3 (10.00)
	5,001–10,000	11 (36.67)	11 (36.67)
	10,001–15,000	12 (40.00)	8 (26.67)
	Above 15,000	5 (16.67)	8 (26.67)
Dietary pattern	Vegetarian only	9 (30.00)	7 (23.33)
	Both vegetarian and non-vegetarian	21 (70.00)	23 (76.67)

The experimental and control groups were predominantly aged 50–55 years and included more male than female participants. Illiteracy was the most common educational category. Government employment was the largest occupational category in the experimental group, while coolie work and government employment were equally represented in the control group. Most participants were married and reported a mixed vegetarian/non-vegetarian dietary pattern.

Table 2: Frequency and percentage distribution of clinical variables (N=60)

Clinical variable	Category	Experimental group (n=30), n (%)	Control group (n=30), n (%)
Duration of illness	1–5 years	4 (13.33)	3 (10.00)
	6–10 years	12 (40.00)	10 (33.33)

	More than 10 years	14 (46.67)	17 (56.67)
Other health problems apart from hypertension and diabetes	Yes	16 (53.33)	20 (66.67)
	No	14 (46.67)	10 (33.33)
Family history of CKD	Yes	8 (26.67)	9 (30.00)
	No	22 (73.33)	21 (70.00)
Frequency of BP/blood sugar checking	Weekly	8 (26.67)	6 (20.00)
	Monthly	12 (40.00)	8 (26.67)
	Occasionally	6 (20.00)	10 (33.33)
	Never	4 (13.33)	6 (20.00)
Taking prescribed drugs on time	Yes	2 (6.67)	1 (3.33)
	No	28 (93.33)	29 (96.67)
Ever had renal function test	Yes	7 (23.33)	9 (30.00)
	No	23 (76.67)	21 (70.00)
Swelling in feet or face	Yes	16 (53.33)	15 (50.00)
	No	14 (46.67)	15 (50.00)
Regular doctor check-ups	Yes	7 (23.33)	9 (30.00)
	No	23 (76.67)	21 (70.00)

More than one-third of participants in each group had hypertension and/or diabetes for over 10 years. Most reported additional health problems, did not take prescribed drugs on time, had never undergone renal function testing, and did not attend regular doctor check-ups. The source table is reproduced using the reported frequencies and percentages.

Table 3: Pre-test and post-test levels of knowledge regarding CKD prevention

Knowledge level (score)	Experimental pre-test n (%)	Experimental post-test n (%)	Control pre-test n (%)	Control post-test n (%)
Inadequate (1–13)	11 (36.67)	0 (0.00)	13 (43.33)	12 (40.00)
Moderate (14–26)	19 (63.33)	8 (26.67)	17 (56.67)	18 (60.00)
Adequate (27–40)	0 (0.00)	22 (73.33)	0 (0.00)	0 (0.00)

At pre-test, no participant in either group had adequate knowledge. At post-test, 22 (73.33%) participants in the experimental group achieved adequate knowledge, while the control group remained in the inadequate or moderate categories.

Table 4: Pre-test and post-test levels of attitude regarding CKD prevention

Attitude level (score)	Experimental pre-test n (%)	Experimental post-test n (%)	Control pre-test n (%)	Control post-test n (%)
Positive (76–100)	0 (0.00)	21 (70.00)	0 (0.00)	0 (0.00)
Neutral (51–75)	3 (10.00)	8 (26.67)	2 (6.67)	3 (10.00)
Negative (26–50)	18 (60.00)	1 (3.33)	22 (73.33)	22 (73.33)
Very negative (0–25)	9 (30.00)	0 (0.00)	6 (20.00)	5 (16.67)

At baseline, negative or very negative attitudes predominated in both groups. At post-test, 21 (70.00%) participants in the experimental group had positive attitudes. The control group showed little change, with negative attitudes remaining most common.

Table 5: Within-group comparison of pre-test and post-test mean scores

Outcome	Group	Pre-test mean (SD)	Post-test mean (SD)	Mean difference as reported	Paired t
Knowledge	Experimental	17.2 (4.6)	31.3 (5.6)	14.1	16.7
Knowledge	Control	17.0 (5.0)	17.5 (4.9)	0.5	0.9
Attitude	Experimental	35.1 (12.6)	81.2 (12.4)	46.1	23.2
Attitude	Control	36.0 (11.1)	34.1 (10.4)	2.1*	1.5

The experimental group showed substantial increases in knowledge and attitude scores. The dissertation interprets both paired comparisons as statistically significant. The control-group knowledge and attitude comparisons were reported as non-significant. *The source reports a control-group attitude mean difference of 2.1, although the difference between the displayed means (36.0 and 34.1) is 1.9; this requires checking against the dataset.

Table 6: Between-group comparison of post-test scores

Outcome	Control group mean (SD)	Experimental group mean (SD)	Mean difference	Independent t
Knowledge	17.5 (4.9)	31.3 (5.6)	13.8	10.1
Attitude	34.1 (10.4)	81.2 (12.4)	47.1	15.9

Post-test knowledge and attitude scores were higher in the experimental group than in the control group. Both between-group comparisons were reported as statistically significant at the 0.05 level. The source tables incorrectly label these between-group statistics as paired t-values in places; the methods section specifies an unpaired/independent t-test for between-group comparison.

Table 7: Correlation between post-test knowledge and attitude scores

Group	Knowledge mean (SD)	Attitude mean (SD)	Correlation coefficient (r)	Source interpretation
Experimental	31.3 (5.6)	81.2 (12.4)	0.50	Significant, $p<0.05$
Control	17.5 (4.9)	34.1 (10.4)	0.036	Non-significant

The experimental group showed a moderate positive correlation between post-test knowledge and attitude scores ($r=0.50$), reported as significant. The control-group correlation was close to zero ($r=0.036$) and was marked non-significant in the source table. The exact p-values and confidence intervals were not provided.

Association between baseline scores and selected variables

The dissertation presents four chi-square association tables. For conciseness, Table 7 lists only associations identified as statistically significant in the source tables. All other tested associations were marked non-significant in the dissertation, although some table labels and p-values conflict and must be verified.

Table 8. Associations reported as statistically significant in the source dissertation

Group and baseline outcome	Variable	χ^2 (df)	p-value in source
Experimental: pre-test knowledge	Personal habits	9.01 (3)	0.020
Experimental: pre-test attitude	Regular doctor check-ups	11.36 (2)	0.003
Control: pre-test knowledge	Dietary pattern	6.67 (1)	0.009
Control: pre-test knowledge	Swelling of feet or face	6.65 (1)	0.009
Control: pre-test attitude	Educational status	20.8 (6)	0.001

The source also reports a p-value of 0.017 for the association between medication-taking and pre-test attitude in the control group, but labels it non-significant. Since p=0.017 is below 0.05, the reported p-value and significance label conflict and are not classified here without verification. In the experimental-group knowledge table, personal habits are reported as significant (p=0.020); the source table's chi-square value and degrees of freedom should be checked against the original analysis output.

DISCUSSION

The principal finding was the improvement in CKD-prevention knowledge and attitude following administration of the self-instructional module. In the experimental group, mean knowledge increased from 17.2 to 31.3 and mean attitude increased from 35.1 to 81.2. The corresponding paired t-values were reported as 16.7 and 23.2. The control group showed only a small increase in knowledge and a slight decrease in attitude, neither of which was reported as statistically significant. Post-test comparisons also favoured the experimental group.

The categorical results were consistent with the mean-score findings: 73.33% of the experimental group achieved adequate knowledge and 70.00% demonstrated positive attitudes at post-test. The baseline profile points to practical educational needs: 93.33% of the experimental group and 96.67% of the control group reported not taking prescribed medication on time, while 76.67% and 70.00%, respectively, reported never having undergone a renal function test. The results suggest that structured patient education may improve awareness, although this study did not measure sustained behaviour change, renal function or clinical outcomes.

The findings are broadly consistent with the relevance of CKD education described in the source literature, including Sa'adeh et al. (2018), who examined CKD prevention and early-detection knowledge, attitudes and practices among hypertensive patients, and Badran et al. (2023), who examined diabetes-related knowledge and CKD-related knowledge, attitudes and practices. Comparisons should be made cautiously because those studies were observational and used different instruments and populations.

CONCLUSION

The study found that the self-instructional module was associated with improved knowledge and more favourable attitudes regarding prevention of CKD among hypertensive and diabetic patients in the experimental group. The post-test mean scores were higher in the experimental group than in the control group. The module may be a feasible nursing education strategy in rural settings. Larger studies with randomized allocation, longer follow-up and assessment of preventive behaviours and clinical indicators are needed to establish sustained effectiveness.

Limitations

- The study The sample was small (60 participants) and purposively selected from two villages in one district, limiting generalizability.
- Participants were not randomly assigned; group allocation by village may have introduced selection or setting-related differences.
- Follow-up was short (14 days), and longer-term knowledge retention, behavioural change and clinical outcomes were not assessed.
- The source dissertation contains inconsistencies in some tables, statistical labels, scale descriptions and narrative interpretations.
- A reliability coefficient for the study instruments and details of institutional ethics committee approval were not available in the supplied report

REFERENCES

1. Badran A, Bahar A, Tammam M, Bahar S, Khalil A, Koni AA, Zyoud SH. The relationship between diabetes-related knowledge and kidney disease knowledge, attitudes, and practices. BMC Public Health. 2023;23:480.
2. Sa'adeh HH, Darwazeh RN, Khalil AA, Zyoud SH. Knowledge, attitudes and practices of hypertensive patients towards prevention and early detection of chronic kidney disease. Clinical Hypertension. 2018;24:6.
3. Inthaphalan P, Lininger J, Terathongkum S. The effectiveness of a health literacy enhancement program on knowledge, self-management behaviors, and clinical outcomes in people with chronic kidney disease. Belitung Nursing Journal. 2024;10(6). Pages/article number not stated in source.
4. Jagodage MH, McGuire A, Seib C, Bonner A. Effectiveness of teach-back for chronic kidney disease patient education. Journal of Renal Care. 2024;50(2):92–103.
5. Nguyen NT, Douglas C, Bonner A. Effectiveness of self-management programme in people with chronic kidney disease. Journal of Advanced Nursing. 2019;75(3):652–664.

6. Zibran MA, et al. Knowledge, attitude and practice of type 2 diabetic patients with chronic kidney disease. ARC Journal of Public Health and Community Medicine. 2018;3(2):19–27.
7. Kumar R, Singh P. Knowledge and attitude about CKD prevention in a rural diabetic population. Indian Journal of Preventive Medicine. 2020;24(1):50–57. (As listed in source; verify bibliographic details.)
8. Lee Y, Park H. Impact of a health education booklet on CKD knowledge among hypertensive patients. Journal of Health Education Research. 2022;10(2):100–110. (As listed in source; verify bibliographic details.)
9. Patel S, Mehta D. Development and validation of a self-instructional manual for CKD prevention. Nursing Research Review. 2022;7(3):145–156. (As listed in source; verify bibliographic details.)
10. Rivera G. Self-instructional modules versus lectures in CKD education. Clinical Nursing Education. 2019;12(4):210–218. (As listed in source; verify bibliographic details.)
11. Singh N, Kaur M. Effect of self-instructional module on knowledge of CKD among diabetic patients in rural Punjab. Journal of Community Health Nursing. 2021;38(1):15–25. (As listed in source; verify bibliographic details.)
12. Wang L, Zhao Y, Chen X. Effectiveness of self-instruction modules on CKD screening awareness in an urban primary care setting. Asia Pacific Journal of Nephrology. 2019;8(3):123–130. (As listed in source; verify bibliographic details.)
13. Johnson M, Allen R. Knowledge, attitude and practice (KAP) study on CKD prevention in primary care clinics. International Journal of Kidney Diseases. 2021;5(1):30–38. (As listed in source; verify bibliographic details.)
14. Bonner A, Havas K, Douglas C, Bennett P. Patient education interventions in early CKD. American Journal of Kidney Diseases. 2018;71(4):534–548.
15. Puri S, Pareek S. Educational intervention on post-dialysis home care: Effects on caregiver knowledge and attitude. Journal of Applied Sciences & Clinical Practice. 2021;2(3):69–73.
16. Mahanta P, Dutta A. Effectiveness of a self-instructional module on home care management in patients undergoing hemodialysis. International Journal for Research Trends and Innovation. 2024;9(6):158–166.
17. Schwandt A, et al. Prevalence of chronic kidney disease among adults in a rural population near Shimoga, Karnataka, India. Journal of Diabetes and Its Complications. 2017;31(9):1376–1383.
18. Al Qurashi S, et al. Effect of brief educational intervention on awareness of CKD among type 2 diabetes patients: A Saudi Arabian study. Saudi Journal of Kidney Diseases & Transplantation. 2023;34(2):215–222. (As listed in source; verify author list and title.)
19. Wong KK, Velasquez A, Powe NR, Tuot DS. Association between health literacy and self-care behaviors among patients with chronic kidney disease. BMC Nephrology. 2018;19:196.
20. Tuot DS, Rubinsky AD, Velasquez A, et al. A multi-level intervention among low-income patients with CKD to improve blood pressure control: Kidney Awareness Registry and Education (KARE) trial. Kidney Medicine. 2019;1(5):242–252.
21. Giassi KS, Silva AS, Pimenta AM. Interventions for improving health literacy in people with chronic kidney disease. BMJ Open. 2020;10(9):e036060.
22. Schaffhausen CR, Bruin MJ, et al. Explore Transplant at Home: A randomized control trial of an educational intervention to increase transplant knowledge. BMC Nephrology. 2019;16:150. (Volume/year details require verification.)
23. Akkilagunta S, Premarajan KC, Parameswaran S, Kar SS. Association of non-allopathic drugs and dietary factors with chronic kidney disease: A study in South India. Journal of Family Medicine and Primary Care. 2018;7(6):1346–1352.
24. Kodgirwar PS, Jajoo SU, Jajoo UN, Taksande BA, Gupta SS. Nonalbuminuric chronic kidney disease: A dominant presentation in rural central India. Journal of Family Medicine and Primary Care. 2018;7(2):442–446.
25. Asghar S, Asghar S, Mahmood T, et al. Microalbuminuria as the tip of the iceberg in type 2 diabetes mellitus: Prevalence, risk factors, and diabetic complications. Cureus. 2023;15(8):e43190.

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