

A Study to Assess Knowledge and Attitude Towards Management of Non-Communicable Diseases Among Patients Visiting Selected Urban And Rural Primary Health Centers of Bikaner District, with A View to Develop Self Instructional Module

Krishan Kant Bhardwaj¹, Ghanshyam Jangir², Amitabh Tanwar³

¹M.Sc. Nursing, Final year student, Community Health Nursing, Govt. College of Nursing, Bikaner

²Principal, Medical Surgical Nursing, Govt. College of Nursing, Bikaner

³Nursing Tutor, Pediatric Nursing, Govt. College of Nursing, Bikaner

Abstract

INTRODUCTION: Non-Communicable Diseases (NCDs) such as diabetes, hypertension, cardiovascular diseases, chronic respiratory diseases, and cancer are among the leading causes of death worldwide. These diseases are not caused by infectious agents and typically progress slowly over time. According to the World Health Organization (WHO), NCDs account for over 74% of global deaths, with a significant number of these occurring in low- and middle-income countries, including India. In India, the burden of NCDs has grown rapidly due to urbanization, sedentary lifestyles, poor dietary habits, tobacco use, and alcohol consumption. The Indian Council of Medical Research (ICMR) reports that NCDs contribute to more than 60% of the total deaths in the country, with the highest impact observed in adults aged 30–70 years. Despite the existence of government programs such as the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke (NPCDCS), many patients—especially in rural and underserved urban areas—have limited knowledge about the prevention and control of these diseases. Patients' attitude towards lifestyle modifications, medication adherence, and disease monitoring plays a critical role in the effective management of NCDs

Objectives:

1. To assess the knowledge and attitude of patients regarding management of NCDs at selected urban and rural PHCs.
2. To compare knowledge and attitude of patients regarding management of NCDs between urban and rural PHC.
3. To find association between knowledge and attitude of patients regarding management of NCDs with selected demographic variables.
4. To develop a Self-Instructional Module based on the study findings to enhance patient understanding and self-management regarding NCD.

Hypothesis: H1-There will be a significant association between knowledge regarding management of

NCDs and selected demographic variables of patients visiting urban and rural primary Health Centers of Bikaner.

H2- There will be a significant association between attitude regarding management of NCDs and selected demographic variables of patients visiting urban and rural primary Health Centers of Bikaner.

Methodology: A Quantitative research approach was considered appropriate for the present study. A descriptive, comparative study design will be adopted to assess and compare the knowledge and attitude of patients attending selected urban and rural Primary Health Centers (PHCs) in Bikaner district. In the present study, sample consists of 100 patients from urban PHCs and 100 patient from Rural PHCs of Bikaner (Raj). A stratified purposive sampling technique was used to select the study participants.

Results: The study revealed difference in the knowledge and attitude of patients regarding the management of non-communicable diseases (NCDs) between urban and rural Primary Health Centers (PHCs) of Bikaner district. Urban patients demonstrated higher mean knowledge scores (17.71 ± 4.58) compared to rural patients (12.98 ± 5.40). Similarly, the mean attitude score was higher among urban patients (39.13 ± 7.34) than rural patients (36.34 ± 10.23). A majority of rural participants (80%) had poor to average knowledge, whereas more than half of urban participants (55%) had good to excellent knowledge levels. Favorable attitude towards NCD management was observed in 78% of urban patients and 52% of rural patients.

Conclusion: The present study concludes that patients visiting selected urban and rural Primary Health Centers (PHCs) of Bikaner district exhibit considerable variation in their knowledge and attitude toward the management of non-communicable diseases (NCDs). Urban patients consistently demonstrated significantly higher levels of knowledge and more favorable attitudes compared to rural patients. This disparity reflects differences in educational status, socioeconomic conditions, access to health information, and exposure to healthcare services.

Introduction:

Non-Communicable Diseases (NCDs) such as diabetes, hypertension, cardiovascular diseases, chronic respiratory diseases, and cancer are among the leading causes of death worldwide. These diseases are not caused by infectious agents and typically progress slowly over time. According to the World Health Organization (WHO), NCDs account for over 74% of global deaths, with a significant number of these occurring in low- and middle-income countries, including India ¹.

In India, the burden of NCDs has grown rapidly due to urbanization, sedentary lifestyles, poor dietary habits, tobacco use, and alcohol consumption. The Indian Council of Medical Research (ICMR) reports that NCDs contribute to more than 60% of the total deaths in the country, with the highest impact observed in adults aged 30–70 years ².

Despite the existence of government programs such as the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke (NPCDCS), many patients—especially in rural and underserved urban areas—have limited knowledge about the prevention and control of these diseases. Patients' attitude towards lifestyle modifications, medication adherence, and disease monitoring plays a critical role in the effective management of NCDs ³.

The 2030 Agenda for Sustainable Development recognizes NCDs as a major challenge for sustainable development. As part of the Agenda, heads of state and government committed to develop ambitious national responses, by 2030, to reduce by one third premature mortality from NCDs through prevention and treatment (SDG target 3.4) ⁴. WHO plays a key leadership role in the coordination and promotion of

the global fight against NCDs and the achievement of the Sustainable Development Goals target 3.4⁵. In 2019, the World Health Assembly extended the WHO Global Action Plan for the Prevention and Control of NCDs 2013–2020 to 2030 and called for the development of an Implementation Roadmap 2023–2030 to accelerate progress on preventing and controlling NCDs. The Roadmap supports actions to achieve a set of nine global targets with the greatest impact towards prevention and management of NCDs^{6,7}.

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3. To find association between knowledge and attitude of patients regarding management of NCDs with selected demographic variables.
4. To develop a Self-Instructional Module based on the study findings to enhance patient understanding and self-management regarding NCDs.

Hypothesis:

H₁-There will be a significant association between knowledge regarding management of NCDs and selected demographic variables of patients visiting urban and rural primary Health Centers of Bikaner.

H₂- There will be a significant association between attitude regarding management of NCDs and selected demographic variables of patients visiting urban and rural primary Health Centers of Bikaner.

Methodology:

Research Approach: Quantitative research approach is used to objectively measure and analyze the knowledge and attitude of patients regarding the management of Non-Communicable Diseases using structured tools.

Research design: Descriptive, comparative study design adopted to assess and compare the knowledge and attitude of patients attending selected urban and rural Primary Health Centers (PHCs) in Bikaner district.

Setting: The study conducted in selected urban and rural PHCs of Bikaner district, Rajasthan. These centers chosen based on patient load, accessibility, and representation of both urban and rural populations.

Population: The population for the study includes adult patients (≥ 18 years) who are visiting the selected PHCs and are either diagnosed with or at risk of any Non Communicable Diseases.

Sample size: In the present study, sample consists of 100 patients from urban PHCs and 100 patient from Rural PHCs of Bikaner (Raj).

Sampling technique: A stratified purposive sampling technique was used to select the study participants. The study population was stratified into two groups: patients attending urban PHCs and patients attending rural PHCs of Bikaner district. From each stratum, purposive sampling was employed to include participants who met the inclusion criteria.

Tool for data collection: Tool used in study consists of three sections:

Section A: Socio demographic Performa which include Age, Gender, Marital status, Education

qualification, Occupation, Economic Status , Area of Residence ,Type of Non Communicable Diseases diagnosed ,Duration of NON Communicable Disease and source of information etc.

Section B: Structured knowledge questionnaire for knowledge assessment on Non Communicable Diseases.

Section C: Attitude scale (10 items, 5-point Likert scale)

Validity and reliability: The content validity was obtained from experts in field of nursing. In order to establish the reliability, Cronbach's alpha was used to test the reliability of the tool. The reliability coefficient obtained for tool was 0.72 found to be internally consistent and reliable for the study.

Ethical consideration: Research permission was obtained from the appropriate authorities and written informed consent from participants.

Results:

Table: 1. FREQUENCY AND PERCENTAGE DISTRIBUTION OF PATIENTS BY DEMOGRAPHIC & CLINICAL VARIABLES

Variable	Category	Rural n (%)	Urban n (%)	Total n (%)
Age	<30	5 (5.0)	8 (8.0)	13 (6.5)
	31–40	36 (36.0)	21 (21.0)	57 (28.5)
	41–50	46 (46.0)	48 (48.0)	94 (47.0)
	>50	13 (13.0)	23 (23.0)	36 (18.0)
Gender	Female	29 (29.0)	30 (30.0)	59 (29.5)
	Male	71 (71.0)	70 (70.0)	141 (70.5)
Marital Status	Married	86 (86.0)	75 (75.0)	161 (80.5)
	Single	9 (9.0)	15 (15.0)	24 (12.0)
	Widowed	5 (5.0)	9 (9.0)	14 (7.0)
	Divorced	0 (0.0)	1 (1.0)	1 (0.5)
Education	Primary	35 (35.0)	24 (24.0)	59 (29.5)
	Secondary	38 (38.0)	25 (25.0)	63 (31.5)
	Higher Secondary	20 (20.0)	27 (27.0)	47 (23.5)
	Graduate/Postgraduate	7 (7.0)	24 (24.0)	31 (15.5)
Occupation	Agriculture	66 (66.0)	2 (2.0)	68 (34.0)
	Government job	14 (14.0)	34 (34.0)	48 (24.0)
	Private job	15 (15.0)	41 (41.0)	56 (28.0)
	Unemployed	5 (5.0)	23 (23.0)	28 (14.0)
Economic Status	Lower	66 (66.0)	37 (37.0)	103 (51.5)
	Middle	27 (27.0)	45 (45.0)	72 (36.0)
	High	7 (7.0)	18 (18.0)	25 (12.5)
NCD Type	Diabetes	37 (37.0)	55 (55.0)	92 (46.0)
	Hypertension	38 (38.0)	35 (35.0)	73 (36.5)
	COPD	13 (13.0)	5 (5.0)	18 (9.0)
	Other	12 (12.0)	5 (5.0)	17 (8.5)
Duration	<6 months	21 (21.0)	20 (20.0)	41 (20.5)

	6–12 months	23 (23.0)	18 (18.0)	41 (20.5)
	1–3 years	24 (24.0)	28 (28.0)	52 (26.0)
	>3 years	32 (32.0)	34 (34.0)	66 (33.0)
Source Information	Family/Friends	41 (41.0)	42 (42.0)	83 (41.5)
	Health Worker	21 (21.0)	27 (27.0)	48 (24.0)
	Internet	15 (15.0)	14 (14.0)	29 (14.5)
	Media	23 (23.0)	17 (17.0)	40 (20.0)

Table 2: Descriptive Statistics of Knowledge Score among Rural and Urban Patients.

Group	n	Mean	Median	Mode	SD
Rural	100	11.45	13.00	14	5.401
Urban	100	15.92	17.00	18	4.582

The mean knowledge score of urban patients (15.92 ± 4.582) was higher than that of rural patients (11.45 ± 5.401). The median and mode were also higher in the urban group (Median = 17, Mode = 18) compared to the rural group (Median = 13, Mode = 14), indicating comparatively better knowledge regarding the management of NCDs among urban primary health centre patients. The standard deviation was higher in the rural group, suggesting greater variability in knowledge levels among rural patients than urban patients.

Table 3: Frequency and Percentage Distribution of Patients according to Knowledge Category (Urban vs Rural).

Knowledge Category	Rural n (%)	Urban n (%)	Total n (%)
Poor	37 (37.0)	10 (10.0)	47 (23.5)
Average	43 (43.0)	35 (35.0)	78 (39.0)
Good	20 (20.0)	42 (42.0)	62 (31.0)
Excellent	0 (0.0)	13 (13.0)	13 (6.5)
Total	100 (100.0)	100 (100.0)	200 (100.0)

In the rural group, the majority had average knowledge (43%), followed by poor knowledge (37%) and good knowledge (20%), while none had excellent knowledge. In the urban group, the majority had good knowledge (42%), followed by average knowledge (35%), excellent knowledge (13%), and only 10% had poor knowledge. Overall, urban patients demonstrated better knowledge categories than rural patients.

Table 4: Descriptive Statistics of Attitude Score among Rural and Urban Patients

Group	n	Mean	Median	Mode	SD
Rural	100	33.29	38.00	30	11.813
Urban	100	39.13	42.00	30	7.348

The mean attitude score of urban patients (39.13 ± 7.348) was higher than that of rural patients ($33.29 \pm$

11.813). The median was also higher in the urban group (Median = 42) than the rural group (Median = 38), indicating a more favorable attitude towards NCD management among urban PHC patients. Both groups showed the same mode (30), suggesting the most frequently occurring attitude score was identical in rural and urban participants. The rural group had a higher standard deviation, indicating wider variation in attitude scores among rural patients.

Table 5: Frequency and Percentage Distribution of Patients according to Attitude Category (Urban vs Rural).

Attitude Category	Rural n (%)	Urban n (%)	Total n (%)
Unfavorable	25 (25.0)	4 (4.0)	29 (14.5)
Neutral	23 (23.0)	18 (18.0)	41 (20.5)
Favorable	52 (52.0)	78 (78.0)	130 (65.0)
Total	100 (100.0)	100 (100.0)	200 (100.0)

In the rural group, 52% had favorable attitude, while 25% had unfavorable and 23% had neutral attitude. In the urban group, 78% had favorable attitude, 18% neutral, and only 4% unfavorable attitude. Overall, urban patients showed a more favorable attitude towards NCD management compared to rural patients.

Table 6: Comparison of Mean Knowledge Score Between Rural and Urban Patients.

Group	n	Mean	SD	t value	df	p value	
Rural	100	12.98	5.401	6.678	198	≤ 0.001	Significant
Urban	100	17.71	4.582				

Table shows that the mean knowledge score among urban patients (Mean = 17.71, SD = 4.582) was higher than among rural patients (Mean = 12.98, SD = 5.401). An independent samples t-test indicates a statistically significant difference ($t = 6.678$, $df = 198$, $p = \leq 0.001$), meaning the difference in knowledge scores is highly significant. Thus, urban patients had significantly better knowledge regarding NCD management compared to rural patients.

Table 7: Comparison of Mean Attitude Score Between Rural and Urban Patients.

Group	n	Mean	SD	t value	df	p value	Remark
Rural	100	36.34	15.087	-4.415	198	≤ 0.001	Significant
Urban	100	44.39	10.237				

Table depicts that the mean attitude score among urban patients (Mean = 44.39, SD = 10.237) was higher than rural patients (Mean = 36.34, SD = 15.087). The independent samples t-test shows a statistically significant difference ($t = -4.415$, $df = 198$, $p = \leq 0.001$). This reveals that urban patients had a significantly more favorable attitude toward NCD management compared to rural patients.

The association between selected demographic variables and knowledge scores of patients regarding NCD management was analyzed using the Chi-square test. The results showed that age ($\chi^2 = 2.453$, $df = 6$, $p = 0.874$), gender ($\chi^2 = 0.490$, $df = 2$, $p = 0.783$), and marital status ($\chi^2 = 1.866$, $df = 4$, $p = 0.760$) were not significantly associated with knowledge levels, indicating that knowledge scores did not differ across age groups, between males and females, or among different marital categories. Similarly,

economic status ($\chi^2 = 1.707$, $df = 4$, $p = 0.789$), type of NCD ($\chi^2 = 9.741$, $df = 6$, $p = 0.136$), duration of illness ($\chi^2 = 7.283$, $df = 6$, $p = 0.296$), and source of information ($\chi^2 = 9.594$, $df = 6$, $p = 0.143$) also showed no significant association with knowledge scores. These findings suggest that income level, disease type, length of time living with the illness, and the source through which patients received information did not influence their knowledge about NCD management.

In contrast, education ($\chi^2 = 14.225$, $df = 6$, $p = 0.041$) demonstrated a statistically significant association with knowledge score, indicating that patients with higher educational attainment possessed better knowledge regarding NCD prevention and management. Additionally, occupation ($\chi^2 = 17.599$, $df = 6$, $p = 0.031$) was significantly associated with knowledge levels, suggesting that employment status and type of work may provide differences in exposure or access to health-related information. Overall, the analysis reveals that education and occupation are the only demographic variables significantly associated with knowledge, while all other variables show no meaningful influence on patients' knowledge regarding NCD management.

Association between knowledge categories of urban patients and selected demographic variables using the Chi-square test. The analysis shows that age ($\chi^2 = 5.479$, $df = 9$, $p = 0.791$), gender ($\chi^2 = 5.746$, $df = 3$, $p = 0.125$), and marital status ($\chi^2 = 5.488$, $df = 9$, $p = 0.790$) did not exhibit any statistically significant relationship with knowledge level. This indicates that knowledge regarding NCD management was comparable across age groups, between males and females, and among individuals with different marital backgrounds. Similarly, occupation ($\chi^2 = 7.053$, $df = 9$, $p = 0.632$), economic status ($\chi^2 = 7.692$, $df = 6$, $p = 0.262$), type of NCD ($\chi^2 = 6.537$, $df = 9$, $p = 0.685$), and source of information ($\chi^2 = 7.935$, $df = 9$, $p = 0.541$) were not significantly associated with knowledge categories. These findings suggest that employment status, financial position, disease type, and the platform through which health information was received did not influence the knowledge level of urban patients.

In contrast, two demographic variables—education and duration of illness—were found to have significant associations with knowledge category. Education ($\chi^2 = 22.573$, $df = 9$, $p = 0.038$) showed a meaningful relationship, indicating that individuals with higher educational attainment possessed better knowledge regarding NCD management compared to those with lower educational levels. Likewise, duration of illness ($\chi^2 = 23.017$, $df = 9$, $p = 0.032$) demonstrated a significant association, suggesting that patients who have lived longer with their condition tend to acquire more information and understanding about their disease over time. Overall, the results highlight that education and duration of illness are the only variables significantly influencing knowledge levels among urban patients, while all other demographic characteristics do not show a meaningful association.

Discussion:

Present study identified key sociodemographic variables significantly associated with knowledge and attitude regarding NCD management. Among rural patients, education ($p = 0.041$) and occupation ($p = 0.031$) were significantly associated with knowledge levels, while in urban patients, education ($p = 0.038$) and duration of illness ($p = 0.032$) showed strong associations. Regarding attitude, duration of illness ($p = 0.022$) was significant among rural respondents, whereas education ($p = 0.040$), economic status ($p = 0.034$), and duration of illness ($p = 0.010$) were associated among urban respondents. These results highlight that education, income stability, and chronic disease experience play crucial roles in shaping both knowledge and attitudes toward NCD management. These findings are in line with previous studies demonstrating similar determinants. Tadiseti and Kumar (2020) found that patients'

educational level and occupational background had a strong positive correlation with NCD awareness, adherence to lifestyle modifications, and treatment compliance.⁸ Similarly, Yashaswini (2021) reported that in rural Indian diabetic patients, literacy levels were a major predictor of knowledge regarding diet, self-monitoring, and regular medical follow-ups; illiterate and economically weaker patients had significantly poorer understanding and self-care behavior.⁹

Conclusion:

The present study concludes that patients visiting selected urban and rural Primary Health Centers (PHCs) of Bikaner district exhibit considerable variation in their knowledge and attitude toward the management of non-communicable diseases (NCDs). Urban patients consistently demonstrated significantly higher levels of knowledge and more favorable attitudes compared to rural patients. This disparity reflects differences in educational status, socioeconomic conditions, access to health information, and exposure to healthcare services.

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