Section: Community Medicine

Original Research Article

QUALITY OF LIFE AND TREATMENT ADHERENCE AMONG PATIENTS ATTENDING NON-COMMUNICABLE DISEASE CLINIC IN A TERTIARY HOSPITAL – AN OBSERVATIONAL STUDY

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Received *: 25/03/2026*
Received in revised form *: 04/05/2026*
Accepted *: 19/05/2026*

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DOI: 10.70034/ijmedph.2026.2.342

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2026; 16 (2); 2043-2048

ABSTRACT

Background: Non-communicable diseases (NCDs) contribute significantly to morbidity and mortality worldwide. India is witnessing a dramatic rise in the prevalence of non-communicable diseases. NCD Clinics have been set up by government at all district places to provide care and treatment for NCD patients. Effective management relies on long-term treatment adherence. Poor adherence may lead to disease progression, complications, and increased healthcare costs. Assessment of quality of life (QoL) provides valuable insight into overall well-being of patients beyond conventional clinical parameters. Understanding QoL among patients attending NCD clinics at tertiary care hospitals is essential for planning holistic and patient-centred care. This study was conducted with the aim to asses quality of life (QOL) of patients with NCD and its determinants along with treatment adherence.

Materials and Methods: A Hospital-based cross-sectional study was conducted in a period of 3 months between February 2024 to April 2024 among 200 patients who attended non-communicable disease Clinic. Data was collected by using a WHOQOL BREF questionnaire and self-designed adherence Questionnaire.

Result: Among 200 NCD patients studied, majority had Hypertension (54%) followed by Diabetes mellitus (35%) and cardiovascular diseases (6%) and other diseases like Sciatica, Osteoarthritis, and Anaemia which constitutes around 5%. Mean Scores of Quality of life in four Domains were: Physical domain (45.16±), Psychological domain (39.67±), Social domain (64.58±), Environmental domain (57.69±). Treatment adherence was good among 90% of the patients, while moderate and poor adherence constitute remaining 10% of patients studied.

Conclusion: Quality of life among patients attending NCD Clinic was high in social domain compared to other domains. Adherence to medication among people with Non-Communicable Diseases in the current study is good. A comprehensive strategy to improve Quality of life among patients attending NCD Clinic is the need of the hour.

Keywords: Quality of life, treatment Adherence, WHOQOL-BREF.

INTRODUCTION

Non-communicable diseases (NCDs) encompass a spectrum of disorders that are non-infectious and non-transmissible among individuals. The principal categories of NCDs comprise cardiovascular diseases (e.g., heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructive pulmonary disease and asthma), hypertension and diabetes. NCDs are progressively supplanting communicable diseases as the predominant cause of mortality and morbidity globally.[1] The impact of non-communicable diseases on quality of life (QoL) is well-documented as a significant global challenge.

Historically perceived as ailments afflicting affluent societies and developed nations, data indicates a disproportionate burden of NCDs on low and middle-income countries. Notably, in India, there has been an escalation in the contribution of NCDs to disability adjusted life years (DALYs), rising from 30% in 1990 to 55% in 2016, highlighting a persistent and escalating disease burden.[2]

In India, the age-standardized death rates for non-communicable diseases (NCDs) stood at 672.5 per 100,000 for males and 524.9 per 100,000 for females, respectively. The primary contributors to NCD-related mortality were cardiovascular diseases, accounting for 17.9 million deaths (44% of all NCD deaths), followed by cancers with 9.0 million deaths (22%), respiratory diseases such as asthma and chronic obstructive pulmonary disease with 3.8 million deaths (9% of all NCD deaths), and diabetes with 1.6 million deaths. Globally, the foremost risk factor for NCDs is elevated blood pressure, which is associated with 13% of global deaths, followed by tobacco use (9%), elevated blood glucose (6%), physical inactivity (6%), and overweight and obesity (5%).[3] In India, the annual toll from the four primary non-communicable diseases (heart and lung diseases, stroke, cancer, and diabetes) amounts to 5.8 million deaths, representing one in every four deaths occurring before an individual reaches the age of 70. Quality of Life (QOL) serves as a subjective evaluation of the impact of illness across the physical, social, and emotional facets of an individual's existence, serving as a widely accepted metric for gauging the burden of disease. The assessment of Quality of Life (QOL) serves as a pivotal indicator for evaluating treatment efficacy in the context of non-communicable diseases. Cardiovascular diseases, notably hypertension, stroke, and myocardial infarction (MI), exert a detrimental influence on Quality of Life (QOL).[4,5]

According to the World Health Organization, adherence is defined as the degree to which an individual's actions regarding medication intake, dietary adherence, and/or lifestyle adjustments align with the agreed-upon recommendations provided by a healthcare provider. Ensuring adherence is of paramount importance, akin to the diagnostic process itself, as the full therapeutic benefits of treatment may not be realized unless blood pressure is adequately controlled. When an individual fails to adhere to the prescribed recommendations from their physician regarding medication usage and behavioural modifications, they are classified as non-adherent. Non-adherence not only poses risks of adverse health outcomes but also contributes to escalated healthcare expenditures. Rates of non-adherence tend to be higher in low and middle-income countries compared to developed nations.[6,7] non-adherence can not only lead to adverse health outcomes but also increased healthcare costs.[8] All districts hospitals are equipped with NCD clinics to provide care, treatment and follow-up facilities to patients with various NCDs. In this background this study was conducted with the following objectives:

1. To assess quality of life among patients attending non-communicable disease clinic in tertiary hospital, Gadag ·
2. To assess treatment adherence among patients attending non-communicable disease clinic a in tertiary hospital, Gadag
3. To determine predictors of quality of life among patients attending non-communicable disease clinic in tertiary hospital, Gadag

MATERIALS AND METHODS

Study design: A Cross-sectional hospital-based study.

Study Population: Patients attending non-communicable disease clinic at K H Patil Institute of Medical sciences (GIMS), Gadag

Sample size: 200 patients attending non-communicable disease clinic.

Study setting: NCD clinic, K H Patil Institute of Medical sciences, Teaching hospital, Gadag, Karnataka.

Study duration: Feb 2024 to April 2024

Study participants: Patients attending NCD clinic.

Inclusion Criteria: Patients attending non-communicable disease clinic of age >18years

Exclusion Criteria

- Patients with acute complications requiring emergency treatment
- Patients with diagnosed psychological disorders unable to answer the questions.

Data collection

Ethical clearance was obtained from IEC, GIMS Gadag. After taking written informed consent patients were interviewed in local language using pre-designed questionnaire consisting of three parts;

Part A – Socio-demographic and clinical features include name, age, gender, risk factors and disease details.

Part B- WHOQOL-BREF, a 26-item instrument consisting of four domains: physical health (7 items), psychological health (6 items), social relationships (3 items), and environmental health (8 items); it also contains QOL and general health items. The physical health domain includes items on mobility, daily activities, functional capacity, energy, Pain and sleep. The psychological domain measures include self-image, negative thoughts, positive attitudes, self-esteem, mentality, learning ability, memory concentration, religion, and the mental status. The social relationships domain contains questions on personal relationships, social support, and sex life. The environmental health domain covers issues related to financial resources, safety, health and social services, living physical environment, opportunities to acquire new skills and knowledge, recreation, general environment (noise, air pollution, etc.), and transportation. Each of these questions are rated on a 5-point Likert scale with higher scores

indicative of higher QOL. The raw scores calculated for each domain were transformed to a score with a range between 0 and 100, with higher scores indicative of higher QOL. For each domain and for total score mean was calculated. The Kannada version of WHOQOL-BREF was validated and administered to the study subjects.

Part C- Treatment Adherence Questionnaire consists of treatment details, drug adherence details and reasons for non-adherence.

Operational Definition

QOL: The quality of life is defined as individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. [9]

The World Health Organization defines adherence as, "the extent to which a person's behaviour of taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider."[10]

Data Analysis: Data will be entered in MS Excel and analysed using IBM Statistical Package for Social Science (SPSS) version 21. Descriptive statistics such as frequency, percentage, and mean with standard deviation were used to summarize the data. Association of QoL scores across domains with socio-demographic parameters were analysed using ANOVA & independent samples t-test. A significance level of $P < 0.05$ was used in the analysis.

RESULTS

The study included 200 Non communicable disease Patients. The mean age of the patients was 47.52± 11.71 years, with 47% male and 53%. Among the study participants 37% were housewives, 80% are from rural area, 92 % are married and 53.5% of NCD patients had completed secondary school (Table 1). Among 200 NCD patients studied, majority had Hypertension (54%) followed by Diabetes mellitus (35%) and cardiovascular diseases (6%) and other diseases like Sciatica, Osteoarthritis, which constitutes around 5% (Fig 1).

The Quality of life was highest in social domain with a mean score of 64.6 ± 9.9, followed by Environmental domain (Fig 2). According to treatment details majority 49.5% and 47% of them were prescribed 1 & 2 drugs per day respectively. Majority 97% of NCD patients got all medicines free at NCD clinic (Table 2). Out of 200, 180(90%) of Non communicable disease Patients were adherent to treatment in the last month. Among the 10% who were not completely adherent to treatment the main reason was forgetfulness (Table 3).

Table 4 shows the association between socio-demographic variables, non-communicable diseases (NCDs), and the four domains of quality of life (physical, psychological, social, and environmental). With respect to age, the highest mean physical domain score was observed among participants aged 41–50 years (48.5±4.7), while the lowest was among those aged 31–40 years (43.5±6.1) which was statistically significant. Participants aged below 20 years had the highest psychological domain score (43.8±2.94). The social domain score was highest among the 41–50 years age group (67.6±7.7), whereas the environmental domain score was highest among participants aged 31–40 years (58.9±9.1). However, no statistically significant association was observed between age and Psychological, environmental and social QoL domain ($p>0.05$).

Regarding gender, males had slightly higher mean scores in all QoL domains compared to females. Male participants showed higher physical (45.5±6.5), psychological (40.1±8.3), social (65.8±9.9), and environmental (58.0±8.1) domain scores. Females have slightly poor quality of life compared to males in all four domains. Nevertheless, the differences were not statistically significant ($p>0.05$).

Among different occupational groups, unskilled workers demonstrated the highest physical domain score (48.9±10.9) and psychological domain score (44.6±8.9) and social domain scores were low among housewives (62.6±9.9). Environmental domain scores were highest among semi-professionals (61.9±5.7). But no statistically significant association was observed between occupation and QoL.

With respect to place of residence, rural participants had marginally higher physical (45.2±5.8) and social (64.8±9.7) domain scores, whereas urban participants had slightly higher psychological (40.2±7.5) and environmental (57.7±6.4) scores. No statistically significant difference was found between rural and urban participants across QoL domains ($p>0.05$).

Regarding education, participants with PUC education had comparatively higher scores in physical (46.0±5.1), psychological (40.4±9.8), social (66.7±9.6), and environmental (59.8±9.0) domains. However, educational status was not significantly associated with QoL domains ($p>0.05$).

Among participants with NCDs other than hypertension, diabetes mellitus and cardiovascular diseases had the highest scores in psychological (42.8±9.3), social (66.7±9.1), environmental (61.6±7.9) domains and physical domain score (46.7±7.5). No statistically significant association was found between type of NCD and QoL domains ($p>0.05$).

Overall, only age showed a significant association with the physical domain of quality of life, whereas age, gender, place of residence, education, and NCD status did not demonstrate statistically significant associations with QoL domains among the study participants.

Table 1: Distribution of study subjects according to Socio-demographic profile

Socio-demographic variables		Frequency	Percent
Gender	Female	106	53.0
	Male	94	47.0
	Total	200	100.0
Age group	<20yrs	2	1.0
	21-30	13	6.5
	31-40	44	22.0
	41-50	44	22.0
	51-60	97	48.5
Occupation	Housewife	74	37.0
	Semi professional	37	18.5
	Semi -skilled	26	13.0
	Skilled	56	28.0
	Unskilled	7	3.5
Place	Rural	160	80.0
	Urban	40	20.0
Marital status	Married	184	92.0
	Unmarried	15	7.5
	Widow	1	.5
Education	Primary school	29	14.5
	Secondary school	107	53.5
	PUC	40	20.0
	Graduation	24	12.0

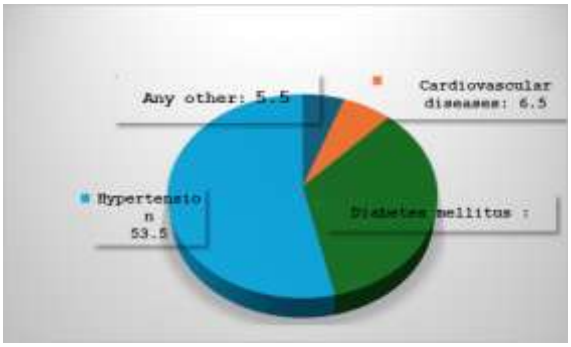

Figure 1: Distribution of study participants according to NCDs

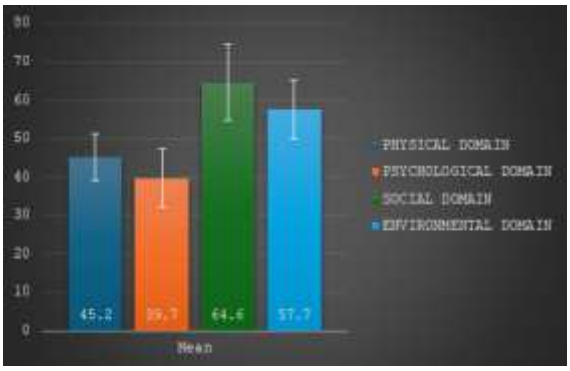

Figure 2: Mean scores for Quality of Life

Table 2: Distribution of study subjects according to treatment details

Treatment details		Frequency	Percent
Number Of Medicines Prescribed	1	99	49.5
	2	94	47.0
	3	4	2.0
	4	3	1.5
	Total	200	100.0
When do you take your medicines	Once a day	102	51.0
	More than once a day	98	49.0
Do you feel it's necessary to take all the drugs	No	6	3.0
	Yes	194	97.0
Do you experience adverse effects on consumption of drugs	No	196	98.0
	Yes	4	2.0
Do you get all medicines free	No	1	.5
	Some of them	5	2.5
	Yes	194	97.0

Table 3: Distribution of study subjects according to treatment adherence

Treatment Adherence		Frequency	Percent
In last 7 days did you forget to take the pills	Yes	20	10.0
	No	180	90.0
	Total	200	100.0
In last 1 month, how many days did you take all medicines in your regimen (Adherence)	Always(good)	180	90.0
	>=3weeks(moderate)	8	4.0
	2-3weeks(poor)	12	6.0
	Total	200	100.0
Are drugs available regularly in NCD Clinic	No	2	1.0
	Yes	198	99.0
	Total	200	100.0
Reasons for not taking medicines regularly (if applicable)	Forgetfulness	10	5.0

	Lack of symptoms	2	1.0
	Work load	8	4.0
	Not applicable	180	90.0
	Total	200	100.0

Table 4: Determinants of QoL among the study participants

Variable	Category	Physical Domain (Mean±SD)	Psychological Domain (Mean±SD)	Social Domain (Mean±SD)	Environmental Domain (Mean±SD)
Age	<20yrs	46.4±0.0	43.8±2.94	66.7±0.0	54.7±6.6
	21-30	46.4±6.4	36.9±6.9	66.7±8.3	56.7±6.7
	31-40	43.5±6.1	39.9±9.4	64.2±10.4	58.9±9.1
	41-50	48.5 ±4.7	38.6±6.5	67.6±7.7	58.0±7.3
	51-60	44.2±6.5	39.7±7.1	63.1±10.5	57.2±7.4
	(f)p value	**(4.88)0.001***	(0.636)0.638	(1.83)0.125	(0.51)0.727
Gender	Male	45.5±6.5	40.1±8.3	65.8±9.9	58.0±8.1
	Female	44.9±6.0	39.3±6.7	63.5±9.8	57.4±7.3
	(f)p value	(.458)0.5	(.513)0.48	(2.62)0.107	(0.316)0.56
Occupation	Housewife	44.3±6.3	38.7±6.9	62.6±9.9	56.9±7.5
	Semi -professional	47.0±5.0	38.6±5.8	65.9±7.4	57.1±5.7
	Semiskilled	44.8±5.0	40.5±5.8	65.7±7.4	61.9±5.7
	Skilled	44.8± 5.4	40.1±6.8	65.6±10.3	57.1±7.6
	Unskilled	48.9±10.9	44.6±8.9	65.5±11.2	58.0±7.8
	(f)p value	(1.92)0.109	(1.529)0.195	(1.183)0.32	(2.353)0.55
Place	Rural	45.2±5.8	39.5±7.5	64.8±9.7	57.71±7.9
	Urban	44.8±7.9	40.2±7.5	63.5±10.8	57.7±6.4
	(f)p value	(1.47)0.70	(.259)0.61	(.555)0.46	(.001)0.977
Education	Primary school	44.8±5.1	40.5±7.4	67.2±9.6	57.9±8.0
	Secondary school	44.6±6.8	39.4±7.1	62.8±10.1	57.1±7.4
	PUC	46.0±5.1	40.4±9.8	66.7±9.6	59.8±9.0
	Graduation	45.8±6.4	38.4±4.7	65.6±8.2	56.4±5.6
	(f)p value	(1.043)0.37	(.532)0.667	(2.53)0.058	(1.395).245
NCD	Diabetes mellitus	44.4±6.8	38.6±6.8	63.4±10.6	56.2±6.1
	Hypertension	45.6±5.8	40.1±7.7	65.1±9.6	58.5±8.6
	Cardiovascular diseases	43.9±4.9	38.8±7.9	64.7±8.4	55.7±5.7
	Any other	46.7±7.5	42.8±9.3	66.7±9.1	61.6±7.9
	(f)p value	(.928).428	(1.253).292	(.589).623	(2.535).058

DISCUSSION

In the present study, the individual mean QOL domain scores of physical health [45.6±5.8], psychological domain [40.1±7.7], social domain [65.1±9.6] and environmental domain [58.5±8.6] in Hypertensive patients. is lower as compared to the scores in a study done on hypertensive patients in Uttar Pradesh but more than the scores in a study done on hypertensive patients in Haryana.

QoL Domain among hypertensive's

Domain	Our study	Uttar Pradesh[14]	Haryana.[15]
Physical	**45.6±5.8**	57.8	12.68±3.12
Psychological domain	**40.1±7.7**	53.15	13.79±2.66
Social domain	**65.1±9.6**	66.82	14.37±2.64
Environmental domain	**58.5±8.6**	60.94	15.43±2.39

In our study, the QOL score in the social domain was significantly higher in diabetic patients and these findings are similar to those results of a cross-sectional study done in Eastern India.16 Whereas some of the other studies showed different results from our study. This may be attributed to strong social support and good personal bonding and care in Indian families, and with their friends and relatives, particularly in rural areas. Social cohesion and interdependence are inherent to the Indian family system, and provide valuable support in times of need. Low psychological scores may be attributed to coexisting anxiety, depression and mental health issues accompanied by diabetes and other associated comorbidities.[16]

Good adherence to medications is essential for achieving better control status for patients with NCD. This needs to be ensured by family physicians and primary care physicians who provide healthcare services to a majority of patients with NCD in our country. A study conducted in Puducherry found that almost one-third (32.7%) of the study participants were not properly adherent to medications which is slightly higher than non-adherent percentage (10%) in our study.[17] A contrast finding was found in a study done in Kerala which reported 74% prevalence of non-adherence.[18] In other south Indian studies carried out in Andhra Pradesh and Karnataka where almost one-third of the participants were non adherent to medications.[19,20] A study in Vizianagaram found that 92.15% of patients

attending an NCD OPD had good medication adherence. Common reasons for non-adherence include forgetfulness, the complexity of treatment (number of medications), and negative personal beliefs about the harms of medication which is similar to the present study.[21]

CONCLUSION

The quality of life was sub-optimal in all the four domains. The most affected domains are physical and psychological domains. QOL in Social domain is better compared to other domains. Females have slightly poor quality of life compared to males in all four domains. Quality of life is better in rural areas compared to urban background. The study suggests that the adherence among Noncommunicable disease patients is Good. A comprehensive strategy to improve Quality of life among patients attending NCD Clinic is the need of the hour.

Conflict of interest statement: None
Source of Funding: None
Ethical approval: Ethical Approval obtained from the Gadag Institute of Medical Sciences, Gadag, Karnataka.

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