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Original Research Article

Performance of community health centres for providing non-communicable diseases services: non-communicable diseases clinics and context for actions

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ABSTRACT

Background: The increasing burden of noncommunicable diseases (NCDs) has been seen as a significant development barrier in the twenty-first-century era. In 2016, nearly 4.1 crore mortalities happened due to noncommunicable diseases only, equivalent to 71% of the overall 5.7 crore deaths. Most of these mortalities were triggered by the four main NCDs, like cardiovascular disease, cancer, chronic respiratory disease and diabetes. These NCDs have become one of the significant health systems challenges in developing countries.
Methods: The current study is a concurrent mixed methodological approach which gives equal weightage.
Results: The study has identified nine significant domains from the qualitative part. The content analysis was used for quantitative approach which has found that nearly 89.6% feels services are available and 10.4% feels there are lacuna in services. The diseases distribution was diabetes 25.3%, cardiovascular diseases account for 30.9%, chronic respiratory account for 26.9%, cancer 3.9%, and multimorbidity accounts for 12.6%. From the content analysis, it is understood from the beneficiaries that whenever the healthcare professional is free, they are providing the promotive and preventive service, 59.5%.
Conclusions: It was understood that the NCD clinics are functional. The NCD clinics are providing the basic services for majority of NCDs. Although the lacuna exists in the health systems with respect to human resources and other factors. There is increased utilization of services compared with past. The role efficacy was found to be high.

Keywords: Non-communicable diseases, NCD clinics, Curative services, Health education, Role efficacy, Utilization

INTRODUCTION

The increasing burden of noncommunicable diseases (NCDs) has been seen as a significant development barrier in the twenty-first-century era.[1] In 2016, nearly 4.1 crore mortalities happened due to noncommunicable diseases only, equivalent to seventy-one per cent of the overall 5.7 crore deaths.[2] Most of these mortalities were triggered by the four main NCDs, like cardiovascular disease accounts (179 lakhs mortalities; they represent fourty four per cent of all mortalities from NCDs); cancer accounts for (90 lakhs mortalities; which accounts twenty-two per cent); chronic respiratory disease accounts for (38 lakhs mortalities; which accounts for nine per cent); and diabetes accounts for (16 lakhs mortalities; which accounts for four per cent).[2] The NCDs have become one of the significant health systems challenges in developing countries and are also accountable for around 62% of the global disease burden.[3] According to 2017 World Health Organization (WHO) NCDs monitoring report, 61% of deaths are associated with NCDs, and 23% of fatalities are at risk of premature death related to NCDs only. Around 380 lakhs people are predicted to die every year from NCDs, including 28 million deaths in developing countries; the magnitude of NCDs is double in developing countries.

Mortality from NCDs increased significantly from 86 lakhs to 109 lakhs in the region of southeast Asia.[3] The risk of NCDs has been seen as a vital issue on the global agenda for Health (WHO, 2014). These diseases pose a severe public health problem that challenges social and financial advancement and places enormous demands on health organizations and societal well-being around the globe, particularly in LMIC. Estimates display shows that by 2030 NCDs can lead to 75-85% of total global deaths. The primary reasons behind the rise of NCDs are the four big NCDs which are mentioned above.[4] The NCDs are significant reasons for increased mortality and morbidity in India, accounting for 60 per cent and, above all, mortalities. The incapacity in India will remain the same until there are measures to halt the progressions of the disease.[5] India has undergone a fundamental change concerning the transition in epidemiology in the last 25 years. The burden of untimely deaths and loss of good Health concerning NCDs has increased significantly. Even communicable diseases and other contagious infections continue to be very high in low and middle-income countries. The hassles present persistently very high, which is very unacceptable. Due to these prerequisites, the extent of the problems needs to differ drastically between the different populations and groups in India.[6] According to the ICMR state disease burden initiative, NCDs were accountable for about 6.0 million fatalities in 2016, representing 62% of this year's total mortality. The four NCDs mentioned above.[6]

NCDs in Andhra Pradesh

As in the rest of India, the epidemiological transition is underway in Andhra Pradesh (AP). Despite the implementation of the NPCDCS, data show that coverage of some of the critical interventions remains low.[7] The current prevalence of smoking and alcohol in AP was 8.15% and 4.93%, respectively, for both sexes.[8] Hypertension (HTN) is widespread in rural areas of AP. Sedentary lifestyles, obesity, and smoking are the changeable risk factors connected with an increased prevalence of HTN.[9] The number of women who have HTN and take medications is higher than that of men who have HTN and take medications.[10] Insufficient physical activity is the primary cause of increased NCDs in Andhra Pradesh.[10] A study by Avvaru indicates that the majority (76.3%) had a minimum of one risk factor. The amplified rate of hypertension in our study was 38.5%. The prevalence of at least one risk factor was significantly associated with the respondents' age, sex, education, and socioeconomic level.[11] The high prevalence of smoking is a public health problem and is 51.7% in our male population.[12] There is an increased number of behavioural risk factors, central obesity, overweight in many cases, and high blood pressure or hypertension in men with AP.[13]

Objectives

Objectives of the study include: to investigate the current situation of the provision of services at NCD clinics/community health centres for control prevention and management of NCDs; to explore perceptions of multiple stakeholders on the role efficacy community health centres; and to understand performance and the utilization of NCD clinics from the beneficiaries' perspectives.

METHODS

In the present study, the scholar tries to comprehend the current situation of NCDs clinics for control prevention and management of NCDs. The researcher attempts to understand and interpret the responses from the study participants with the help of current mix-methods.

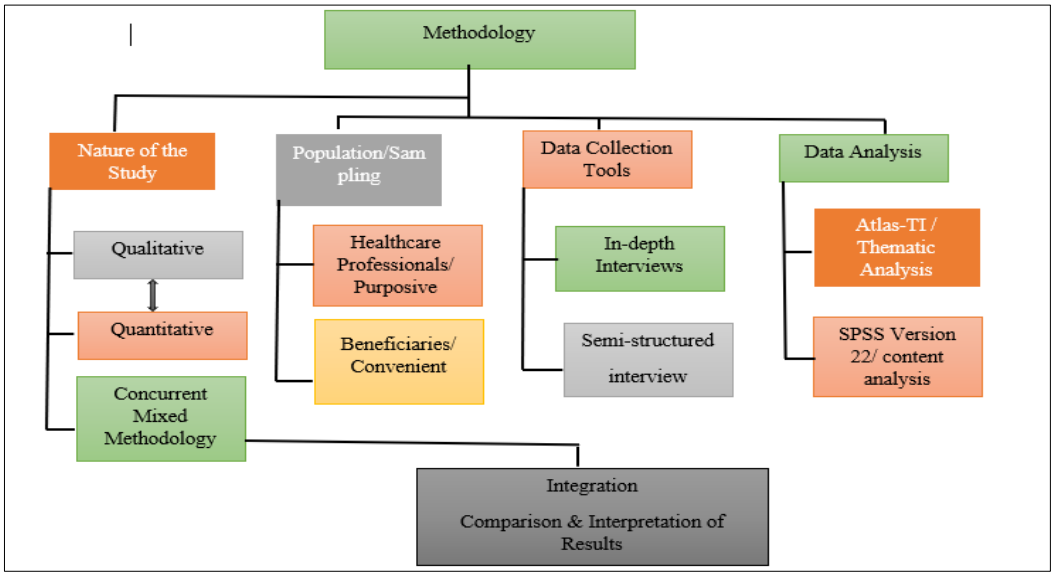

Figure 1: Methodology.

Study type

The current study is a mixed methodological approach. Designed to meet the obejctives and research questions.

Research design

The study has adopted concurrent mixed methods research design, i.e. qualitative and quantitative approaches. Considering the objectives, the study has given equal weight for the qualitative and quantitative parts.

Study setting

The study has been conducted in the state of AP at the community health centres. i.e. at the NCD clinics.

Study period

The study has been conducted in AP from 2018-2020 on community health centres and NCD clinics for prevention, control and management of NCDs services.

Sampling

The sample for the present study is drawn from the entire state of AP, which has 13 districts. It has two major regions, Rayalaseema and Coastal Andhra. The AP state has 13 districts, 9 in the coastal region and 4 in the Rayalaseema area. In the present study, the researcher uses multi-stage sampling to classify the state's geographical regions and select the districts of the stage. Firstly, the geographical region of the state has been divided based on cluster sampling into three significant zones like the east, central, and west zones. Each cluster has a minimum of 5 NCD clinics. A random sample is used to select the NCD clinics from the district level into the study. The total sample is 126. In the current study, the data was collected till saturation was obtained.

Exclusion and inclusion criteria

Inclusion criteria

District program officers and DMHOs who are working under NCD cell and willing to provide written consent; district program coordinators who are working under NPCDCS and willing to participate and provide the written consent; data entry operators and finance cum logistic officers who wish to participate in the study; district officers who are working in NCD Cell and NCD Clinics for at least three months; healthcare professionals working at the CHCs with NCD clinics include a doctor, staff nurse, counsellors, ANM, MPHWs, health supervisors; those who are present at the time of data collection and willing to provide consent; data entry operators and finance cum logistic officers who are willing to participate in the study; district officers who are working in NCD cell and NCD clinics for at least three months; healthcare professionals working at the CHCs with NCD clinics include a doctor, staff nurse, counsellors, ANM, MPHWs, health supervisors; those who are available at the time collecting data and wish to provide consent; beneficiaries of NCD clinics who are ready to provide consent and participate in the study; beneficiaries availing the services for at least one month (outpatient) from the NCD clinics at the CHCs; and inpatient beneficiaries of NCD clinics, at least from the last 15 days were included in the study.

Exclusion criteria

District program officers/DMHOs working under NPCDCS and NCD cell are unavailable and challenging to reach; district program coordinators who do not wish to participate and provide written consent; district DEO, logistic officers, and healthcare professionals working with NPCDCS for less than three months will be excluded from the study; healthcare professional who is not working with NPCDCS and NCD clinics at the CHCs; district officers and healthcare professionals who are not working with NCD clinics; beneficiaries who are not utilizing the services of NCD clinics at the CHCs; beneficiaries who are availing of the services for less than one month; and inpatient beneficiaries of NCD clinics less than 15 days of service utilization were omitted from the study.

Data analysis

The study gives equal weight to qualitative and quantitative approaches. The qualitative data were analyzed in the same framework suggested by Braun and Clarke 2006. The audio-recorded interviews will be transcribed literally and translated into English. The transcripts of the transcribed interviews were analyzed using a thematic analysis recommended by Braun and Clarke.[18] The content analysis was helped by statistical package for the social sciences (SPSS) version 23 and Microsoft excel. Descriptive statistics and percentages were used to comprehend the service availability and utilization of NCD clinics and role efficacy. Traingulaton was used.

RESULTS

The study has identified nine significant domains from the qualitative part, and the results from the quantitative part of the study are triangulated. The domain healthcare service delivery in the study reflects some of the basic understanding of the current provision of the services and their service delivery at the NCD clinics. The participants at the implementation and leadership level perceptions were captured and analysed. The majority of the respondents have said that the essential secondary care services for noncommunicable diseases are available at the majority of the NCD clinics.

"The NCD clinics are providing all the important and basic services for noncommunicable diseases, and we have all the screening programs for diabetes, asthma,

cardiovascular diseases, hypertension, for chronic diseases such as cancer also. We have regular outpatient department (OPD) services where the medical officer and staff nurse provide early diagnosis and treatment services. We have all the curative services mostly" (leadership respondent 01).

The content analysis found that nearly 89.6% of the respondents have felt that the service are available for all the NCDs. The remaining 10.4% of the respondents stated that there is some major lacuna in service delivery.

The Table 1 shows the duration of the disease's condition with respect to the given gender. In males, the duration of the NCDs more than six months is seen in more than 45 respondents, and females are 51 respondents chronic in nature concerning NCDs at the NCD clinics. Many patients are regularly using the medications and treatments for NCDs at the clinics. The below table shows the disease patterns in the community.

Table 1: Showing the NCDs distribution among the populations.

Type of NCD	N	%
Diabetes	32	25.3
Cardiovascular (HTN, stroke)	39	30.9
Cancer	5	3.9
Chronic respiratory diseases (asthma, COPD)	34	26.9
Multimorbidity	16	12.6

The distribution of the diseases is high among both males and females, with slight differences.[20] The domain preventive and promotive services are essential in controlling and managing NCDs at the NCD Clinics and community health centre level.

Table 2 clearly shows the burden of the NCDs in the communities. The cardiovascular diseases are the top cause of deaths and illnesses in the populations. They are distributed equally in both genders, with a slight difference. The female respondents are more affected by cardiovascular diseases than men. Diabetes is also seeming to be very high in both genders; the burden of diabetes is high among the populations as per the study.

"What I believe is that the NCD clinics are very useful in the prevention and control of noncommunicable diseases. Especially when it comes to the secondary care setting most of the services are centered around maternal and child health care services having an NCD clinics at this setting itself is a great idea in order to bring the NCDs under control, providing separate services and treating separately provides the great opportunity to understand the diseases burden in the community and helps to plan according to that. NCD clinics are very useful and very effective in the prevention and control of the diseases" (leadership level respondent 01).

The primary functions include early diagnosis through laboratory and clinical examinations at the clinics. Like testing the blood sugar levels, assessing lipid profiles, X-ray, electrocardiography (ECG), Ultrasound, and others.

Table 2: Disease distribution in the respondents.

S. no.	Diseases	Males	Females
1	Cardiovascular diseases (HTN, stroke, chest pain, etc.)	18	23
2	Diabetes	23	17
3	Respiratory diseases (asthma, COPD)	8	12
4	Cancer	1	4
5	Comorbidity (HTN, DM, Asthma, COPD)	9	11

Table 3: Level of satisfaction and role efficacy of NCD clinics.

Level of satisfaction	Role efficacy of NCD clinics			
	Better	**Very good**	**Useful for people**	**Total**
Satisfied	9	19	34	62
Not satisfied	4	5	30	39
Neutral	2	6	17	25
Total	15	30	81	126

"The NCD clinics are providing all the basic curative services for all the NCD patients, and the NCD clinics are providing the basic screening services daily for all the people above 30 years, we are providing the screening programs for all the people for both males and females, all the medications and tests are available within the community health centres. Only urgent cases are being referred to as the higher level of health facilities. All services are available within the NCD clinics" (medical officer 08).

At the NCD clinics, one medical officer, or one medical officer assisted with two staff nurses for providing related care and services one counselor, one data entry operator for maintaining the data should be available under NPCDCS program.

Primordial prevention is very useful and essential; they are feasible in all the setting.[14] Health promotion is a very important aspect that will result in behavioral changes in the populations in positive results.[15] The preventive actions mostly depend on the leadership level, and government policies and programs like increasing ta on tobacco sales framing proper rules and regulations of tobacco. Having adequate health education is also equally important in the promotion of healthy diets, all these aspects mostly related to the governments. Health education and health promotion can be done by all healthcare professionals.[16] Many studies have already confirmed that targeted

prevention and promotion measures reduce the burden of growing NCDs.[17]

"Health education regularly provided to all the patients, along with some preventive and promotive services, whenever we have time myself, and staff nurses are also providing the health education to the patients" (medical officer 011). "As a medical officer, I have to provide the treatment services at the OPDs, and I also have to provide the health education, preventive and promotive services since they are also part of the treatment process. We don't have any health education and counsellor posts for providing the service more efficiently, and we wish they should be" (medical officer 09).

At the leadership level, people are aware that there is inadequate staff for providing the services. Training and skill development programs are increasingly important for healthcare systems. Such training is beneficial for employees, refining their skills and positively influencing healthcare services' quality.[21] The domain health service coverage helps to understand the extent of the services reaching.[22] This highlights the need for further care, and we can identify the needy people for providing the services.

"The service coverage is also very good as of now, and we see there is a gradual increase in the service coverage at the NCD clinics. There is maximum utilization of our services for patients from different parts of the village every day. Most people are availing the service for noncommunicable diseases; the coverage is also much better now" (medical officer 13).

The NCDs distribution in populations is high. From the quantitative results from the beneficiaries, is it understood that the opportunistic screenings are provided for most of the beneficiaries, which accounts for 74% of beneficiaries the remaining stated that they were not screened or they said the screenings are not available for beneficiaries until unless they go and ask for NCDs screening for comorbidities, which accounts for 26%.

The beneficiaries said 98% of the NCD clinics do not have any counselling services when it comes to counselling services. The beneficiaries also said there were no home-based care services for NCDs at the NCD clinics. The domain quality of the services and medications and lab services at the NCD clinics must be understood as the NCDs burden increases daily. The beneficiaries are also not satisfied with the quality of the medications mostly. Many have complained regarding the poor quality of the medicines mostly, diabetic, asthma, and chronic respiratory patients have complained. In the study, nearly 40.4% of the respondents have said the NCD clinics do not have essential newer drugs to treat NCDs.[23] The old medicines are not sufficient. There is a requirement for up-gradation of the services and primary medications supply, including the new drugs. Nearly 87% of the respondent says all the essential services are available up to some level. Most of the respondents feel the lab reports are given late, which accounts for 21.4%, other respondents feel the lab services are poor, which accounts for 11.9%, and some other respondents feel no advanced equipment is present, which accounts for 16.6%.

The NCD clinics provide good services because of that, and we can see many patients daily at the NCD clinics. The beneficiaries of the study say the NCD clinics are very useful for the people; nearly 64.2% of the respondents have said that. Other respondents have felt the NCD clinics are suitable for people suffering from NCDs; they felt the services are much better now, accounting for 35.8%. The domain health workforce is the cornerstone of public health systems.

"We don't have sufficient staff, one staff nurse, one logistic officer, and one is deficient. According to the NPCDCS guidelines, we don't have sufficient staff, and we have only medical officers and staff nurses providing all the services. We don't have counsellors and health educators. Also, when we have sufficient staff, we can provide a better quality of services for the people; having limited staff and providing quality care is hard. The same thing is happening at the NCD clinics and CHCs also mostly" (medical officer 15).

Some respondents feel there is insufficient delivery of services, which accounts for nearly 24.6%. Some beneficiaries feel the NCD clinics have adequate staff for providing the services, which accounts for 16.6%.[24] Other respondents felt the staff is insufficient for providing the services nearly 46% of the respondents felt. Some respondents also felt the existing team is providing better services now, accounting for 5.5%. The barriers identified by the beneficiaries of the health systems, which account for 40.4%. There are long waiting hours and overcrowding, lack of chairs, halls for waiting, drinking water, and sanitation are some of the other barriers which account for 22.2%.[25] The lack of sufficient time for consultation is also a significant barrier from the beneficiaries' point of view, accounting for 15.8%. The availability of services accounts for nearly 14.2%. Other facilitators being free of cost services, which accounts for 38%. Higher private care costs and separate NCD services account for 25.3% and 22.2%.

The Chi-square test for independence was conducted to assess the association or relation between the beneficiary's level of satisfaction and service utilization with NCD clinics and the predictor variables.

$$X^2 = \Sigma \frac{(O-E)^2}{E}$$

Specifically, the predictors of type of aliment, type of services utilized, barriers faced, role efficacy of health professional, role efficacy of NCD clinics, and facilitators were assessed. The calculate Chi-square was 53.56522. Chi-square statistic was computed as the measure of

association, degrees of freedom were calculated, and the significance of the association was tested at α set at 0.05. The calculated chi-square values were compared against the chi-square critical values to identify the significance. Two variables were identified to be significant with the beneficiary's level of satisfaction with NCD clinics. Specifically, the type or variety of services utilized by the beneficiaries (n=126, χ^2=53.56, df=4; p≤0.05) and the barriers (n=126, χ^2=324.0069, df=6; p≤0.05) faced by them were significantly related or associated with their level of satisfaction.

Cramer's V was computed as the measure of the strength of association for the observed significant associations. The formula used is given below.

$$V = \sqrt{\frac{\chi^2}{N.\min(r-1, c-1)}}$$

The predictor variable type of services utilized had a moderate association with beneficiary satisfaction with NCD clinics (V=0.425, p≤0.05). The barriers faced by the beneficiaries had a very strong association with their level of satisfaction with NCD clinics (V=1.13, p≤0.05).

The Chi-square test of independence was conducted to assess the association between the beneficiary's with NCD clinics and the predictor variables.

$$X^2 = \Sigma \frac{(O-E)^2}{E}$$

Specifically, the predictors of type of aliment, type of services utilized, barriers faced, role efficacy of health professional, role efficacy of NCD clinics, and facilitators were assessed. Chi-square statistic was computed as the measure of association, degrees of freedom were calculated, and the significance of the association was tested at α set at 0.05. The calculated Chi-square values were compared against the chi-square critical values to identify the significance. All the variables are not significant with predictor variables like medical and lab facilities and infrastructure and supportive service, health workforce with NCD clinics. All the Chi-square values are more than 0.5 significance when calculated with the degrees of the freedom of the respective variables.

Table 4: Predictor variables and level of satisfaction.

S. no.	Level of satisfaction Predicator variable	Chi-square value	Degrees of freedom (DF)	P value	Chi-square distribution range
1	Type of ailment	9.18968	8	>0.05	0.50-0.25
2	Type of services utilized	53.56522	4	<0.05	<0.01
3	Barriers	324.0069	6	<0.05	<0.01
4	Role efficacy of healthcare professional	0.791562	4	>0.05	0.95-0.50
5	Role efficacy of NCD clinics	5.842736	4	>0.05	0.75-0.50
6	Facilitators	2.855522	4	>0.05	0.50-0.10

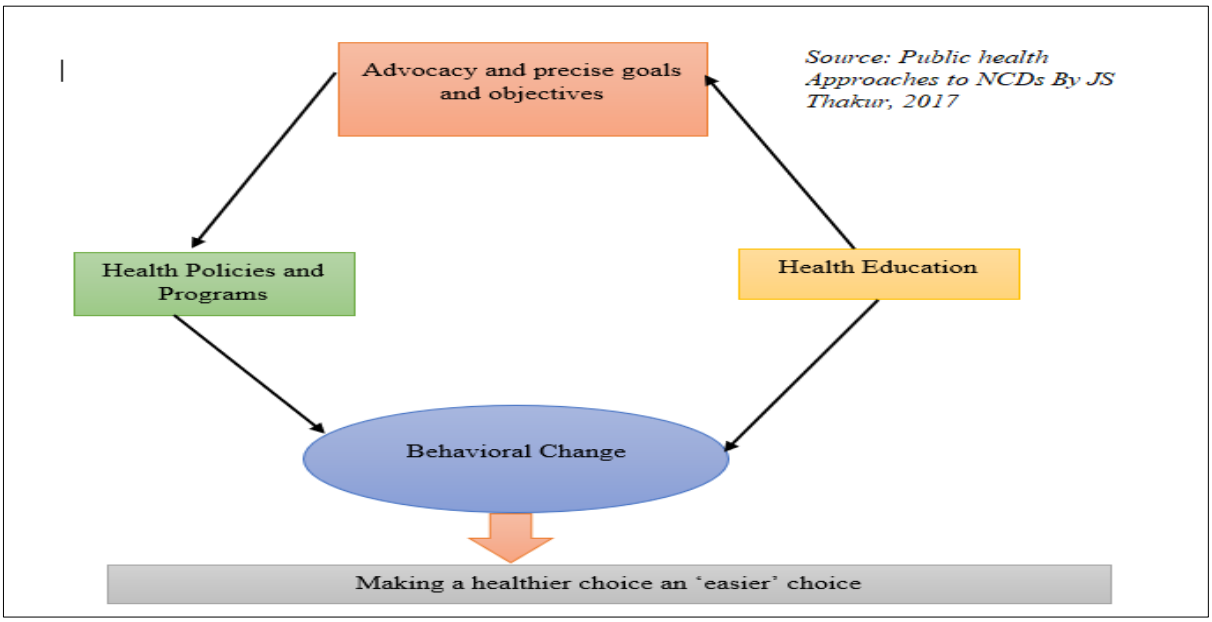

Figure 2: Health promotion mechanism.

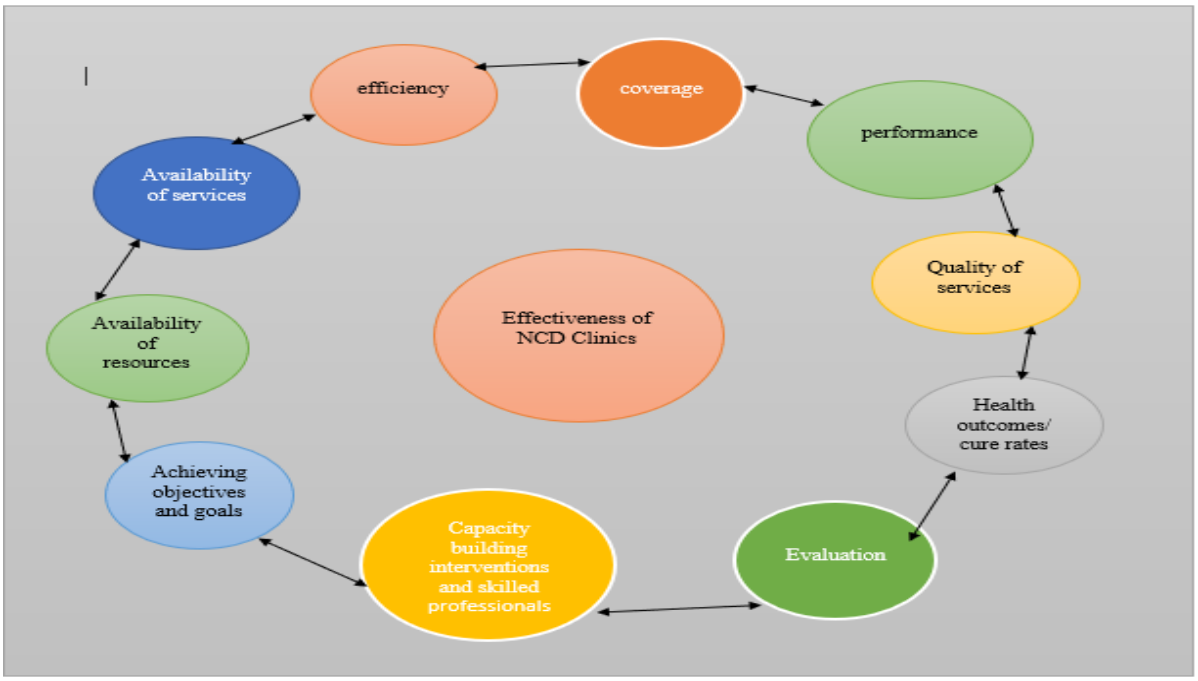

Figure 3: Effectiveness of NCD clinics.

Table 5: Predictor variables and role efficacy of NCD clinics.

S. no.	Role efficacy of NCD clinics			
	Predicator variable	**Chi-square value**	**Degrees of freedom (DF)**	**P value**
1	Medical and lab facilities	1.440184	4	>0.05
2	Infrastructure and supportive services	1.123205	4	>0.05
3	Health work force	3.836488	2	>0.05

DISCUSSION

Limitations

The main limitation of the study was, it has limited to the sampled NCD clinics only. Other remaining NCD clinics out of the sampling frame was not included due to the limitations of the sampling size and sampling procedure, and time constraints. Due to which those NCD clinics are not included, and other districts in the state were left out.

The other restriction or limitations of the study were in the inclusion and exclusion of the study beneficiaries as the research was strict with the criteria of legibility. Most of the beneficiaries were not included in the study due to the exclusion and inclusion criteria limitations. The current study has a limitation of sampling the beneficiaries and healthcare professionals.

In the current study, it was challenging to get permission from the state-level leadership. It was really a challenging task to convince them to participate in the state. However, the researcher was successful in some cases but could not get interviews from some of the relevant respondents due to their busy schedules; it is one of the significant limitations of the study.

Though other negligible unescapable limitations exist, the current study was designed out so that the majority of the identified limitations have compromised to some extent possible, so there is no need to compromise the quality of the data.

CONCLUSION

From the study, it was understood that the NCD clinics are functional in the AP state. The NCD clinics have located within the designated community health centres for providing separate services for the NCDs. The NCD clinics are providing essential curative treatment services for most of the NCDs. Most of the care provided in the NCD clinics has centred around curative treatment only merely. There is little or very little importance to the preventive and promotive service due to lack of sufficient staff for providing the services and lack of other resources for providing the services for NCDs. The current provision of the services and treatments is far better compared with the past. The results show a lot of people are availing of the services from the NCD clinics. People are coming from long distances to avail themselves of the services from the NCDs clinics. The utilization aspects of the NCD clinics are also good.

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