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Service Readiness of Primary Health Care Facilities for Non-Communicable Diseases Management

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ABSTRACT

Background: NCDs prevalence and associated risk factors impacts on the burden of disease and premature mortality. Effective NCD service delivery requires well equipped facilities with trained providers and resources. Evaluating readiness and its determinant is crucial for enhancing NCD management. The study examines readiness in primary health care facilities for managing non-communicable disease in Syangja district.

Methods: A cross-sectional research was conducted among 117 Primary health care facility health workers in Nepal's Syangja District. The data was collected through face-to-face interviews using modified WHO-SARA tool. The chi-square test was used to evaluate the relationship between NCD readiness and its associated factors and multivariable logistic regression was utilized to determine the strength of the correlation.

Results: Only 6 percent of the healthcare facilities in Syangja district had developed the system for readiness against non-communicable diseases. The mean percentage scores for service-specific domains ranged from 40% to 58%, indicating variations in readiness across different domains mainly contributed by basic amenities and training. Approximately 80.3% of health facilities received support from the local government, while equipment or commodities support was provided to the third- quarter of the health facilities.

Conclusion: Total service readiness was very low in the diagnostic and medicine facilities of Syangja. It demonstrates that there is a discrepancy between the present situation of the incremental trend of NCDs and the related level of service preparedness in primary health care settings. The development of the service readiness mechanism is imperative considering the increasing prevalence of non-communicable diseases in Syangja.

Keywords: Non-communicable disease, Primary health facilities, Service Readiness

INTRODUCTION

Health service readiness involves a healthcare system's ability to effectively respond to specific services.[1] Nepal's healthcare facilities readiness to provide non-communicable diseases (NCDs) service is poor.[2] Globally NCD responsible for nearly three-fourth quarter of all death. Among of all NCD deaths, 77% are in low- and middle-income countries. The four groups of diseases cardiovascular diseases, cancers, chronic respiratory diseases and diabetes account for over 80% of all premature NCD deaths.[3] To achieve Nepal commitments under sustainable development goal (SDG-3), Nepal must improve the overall readiness of health system by strengthening service delivery and increasing the number of qualified staff, as well as providing them with proper training, equipment, and medicines.[4,5] Nepal's healthcare system is struggling to cope with the growing burden of NCDs.[6] Local health facilities (HFs) in Nepal were relatively poorly prepared to provide NCDs compared to other secondary level hospitals.[5]

NCD service readiness is crucial for effectively tackling a major public health challenge, as it can improve health outcomes, reduce costs, and strengthen healthcare systems for a healthier population.[7] In Nepal's rising burden of NCDs, responsible for two-thirds of deaths nationwide, necessitates prioritizing health promotion and risk factor reduction interventions. The existing Package of Essential Non-communicable disease (PEN) program offers a foundation for addressing these needs, particularly within the primary healthcare setting.[6] This study aim to assess the readiness of health facilities for

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NCDs and its associated factors among primary health care facilities.

METHODS

A quantitative cross-sectional design study in Syangja District, Nepal from April to May 2023. Syangja is a mountainous district occupying an area of 1164 square kilometers and eleven local levels, including six rural municipalities and five municipalities. Census or Complete enumeration of the data was done, i.e., 117 health facilities from all local levels. The study population was all primary health care facilities (Health post, Community health units, urban health clinics, and basic health service centres) under the Nepal government of Syangja district. There were five primary health care centre, 64-health post, 25-basic health services, 12-urban health clinic and 11-community health unit in Syangja district. First, the list of all government health facilities under Syangja district was obtained from the Syangja health office, and then all the health facilities were taken for study.

Ethical approval was taken from the Institutional Review Committee (IRC) of Pokhara University (Ref. No. 130-079/080). Similarly, prior permission was taken from respective local level and primary health care facilities for data collection. Both verbal and written consent was taken from the respondent after explaining the purpose and objective of the study clearly. The research tool were developed based on the extensive literature review and in tandem with the World health organization, service availability and readiness assessment (WHO-SARA) tools, PEN package guidelines, Minimum Service Standard as well as the guidance of the expert. The data collection tool will be pretested on 10% of the sample of similar respondent and set outside the actual study setting. The questionnaire will be prepared in English first, and then translated to Nepali, retranslated back to English language to check its consistency. Face-to-face Interview with the head of the health facilities was conducted. In case of unavailability of the institution head, Information was taken from the second man of the institution or acting head. Researcher himself collected the data. collected data were checked for completeness and consistency on daily basis.

The collected data was systematically coded and entered into Epi Data Entry 3.1. The data was then exported to SPSS version 21 for further analysis. Descriptive statistics was performed for the description of the characteristics of the respondents and presented using texts and tables. A chi-square test was performed for all variables to check the assumptions. While, bivariate and multivariate techniques were applied to identify correlates of NCD service readiness. A mean availability score for each service domain for each NCDS service was calculated based on the mean availability of tracer items and service-specific readiness was calculated as an overall composite score based on the mean availability of tracer items across all service domains (skilled staff, guideline, basic amenities and medicine and diagnostic equipment), expressed as a percentage. The outcome variable service-readiness was modeled as a binary variable as “ready” and “not ready” for each disease separately, where HF with a service-specific readiness score of at least 70% was categorized as “ready” and otherwise “not ready”.

RESULTS

We assessed 117 PHC facilities of Syangja District and the results of the study are categorized into three parts: background characteristics of primary health care facilities, readiness index specific to NCD services, and factors associated with NCD service-specific readiness. The table 1 shows the distribution of health facilities by location and type. Over 66.7% of facilities are located in urban municipalities. Health Post is the most common type of health facility, comprising 54.7% of all facilities.

Table 1. Background characteristics of Primary Health Care facilities. (N=117)

Characteristics	Frequency (n)	Percentage (%)
Location of Health Facilities		
Rural	44	37.6
Urban	73	62.4
Type of Municipality		
Urban Municipality	72	61.5
Rural Municipality	45	38.5
Type of health facilities		
Primary hospital	2	1.7
Primary health care center	3	2.6
Health post	64	54.7
Basic health care center	25	21.4
Urban Health center	12	10.3
Community health center	11	9.4

Basic Amenities in Health Facilities

The survey revealed that the major portion of health facilities were connected to the national electricity grid (92.3%). Among those facilities (n=108) connected to the health facilities, there was only 34.3% reported uninterrupted electricity supply. Moreover, the alternative source of electricity was found in 14.5% of the surveyed facilities, and among these, some facilities used generators operated by fuel (17.6%), some used generators operated by battery (5.9%) while some used invertors (17.6%). Regarding the availability of a source of water, 53% of the health facilities had piped water. In terms of the outlet of water sources, 54.7% of the facilities had water outlets onsite. A majority (69.2%) of the surveyed facilities had both auditory and visual privacy. In terms of the type of latrine available in health facilities, 70.1% of them had flush toilets, followed by others. 10.3% of the health facilities had telephone services, 27.4% of health facilities had cellular phones and 72.6% of the health facilities had computers where 92.9% of them had functional computers. Likewise, 82.1% of the health facilities had access to the Internet but only 72.6% of them had routinely available Internet access. Three fourth (75.2%) of the health facility had their own building and among these facilities, 85.2% of the health facilities were designed as per standard. In addition, among those health facilities, which does not have their own building, 62.1% of them does not have land for the construction of the building. Surprisingly, only 10.3% of the health facilities had functional ambulances or other vehicles but 54.7% of the health facilities had access to ambulance or other vehicles.

Table 2. Basic Amenities in Health Facilities. (n=117)

Characteristics	Frequency (n)	Percentage (%)
Connected to national electricity grid		
Yes	108	92.3
No	9	7.7
Availability of electricity (n=108)		
Always available	37	34.3
Sometime interrupted	71	65.7
Alternative source of electricity		
Yes	17	14.5
No	100	85.5
Generator with fuel operated (n=17)		
Yes	3	17.6
No	14	82.4
Generator with battery operated (n=17)		
Yes	1	5.9
No	16	94.1
Solar (n=17)		
Yes	12	70.6
No	5	29.4
Invertors (n=17)		
Yes	3	17.6
No	14	82.4
Source of water		
Piped into facility	62	53.0
Piped onto facility grounds	27	23.1
Public tap/standpipe	25	21.4
Bottled water	3	2.6
Available outlets from the source		
Onsite	64	54.7
Within 500m of facility	21	17.9
Beyond 500m of facility	32	27.4
Availability of room with privacy		
Auditory privacy only	4	3.4
Visual privacy only	13	11.1
Both auditory and visual privacy.	81	69.2
No privacy	19	16.2
Type of latrine		
Flush toilet	82	70.1
Ventilated improved pit latrine	13	11.1
Pit latrine with slab	19	16.2
Pit latrine without slab/ open pit	1	0.9
No facilities on premises	2	1.7
Availability of telephone services		
Yes	12	10.3
No	105	89.7
Availability of cellular phone at facility		
Yes	32	27.4
No	85	72.6
Availability of computer		
Yes	85	72.6
No	32	27.4
Functional computer (n=85)		
Yes	79	92.9
No	6	7.1
Access to internet		
Yes	96	82.1
No	21	17.9
Routinely available of internet (n=117)		
Yes	85	72.6
No	32	27.4
Health facility have own building (n=117)		
Yes	88	75.2
No	29	24.8
Building design as per standard (n=88)		
Yes	75	85.2

Table 2. Basic Amenities in Health Facilities. (n=117)

Characteristics	Frequency (n)	Percentage (%)
No	13	14.8
Land for construction of building (n=29)		
Yes	11	37.9
No	18	62.1
Functional ambulance or another vehicle (n=117)		
Yes	12	10.3
No	105	89.7
Access to ambulance or another vehicle (n=117)		
Yes	64	54.7
No	53	45.3
Common means of transportation (n=117)		
Stretcher	11	9.4
Auto vehicle	26	22.2
Hired ambulance	36	30.8
Other	44	37.6
Other means of transportation (n=44)		
Jeep	40	34.2
Own Ambulance	1	0.9
Public Transport	2	1.7

The study found that the majority of health institutions (88%) conducted staff meetings, with 48.5% meeting monthly or more regularly. The majority (92.2%) of them maintained official records of meetings and among them almost all (97.9%) of these records were observed. There were multiple meeting agenda and the majority (75.8%) of the health facilities had meeting agenda on Health management information system (HMIS) data quality followed by HMIS reporting (68.4%), quality of services (58.9%). In addition, 72.6% of the health facilities that maintained official records of meetings had prepared action plans based on the last meeting. The majority of health facilities (95.7%) reported having a Health facility operational management committee (HFOMC), with 48.7% of the health facilities had observed the guidelines. Among those health facilities, which had observed HFOMC guidelines, 84.2% of them had guidelines of the National Health Training Center, 8.8% of them had their own guideline, and 7% had both. Around three fourth (70.1%) of the facilities reported having a citizen charter and 72.6% of the facilities maintained a list of free medicines and their availability. The majority of health facilities (80.3%) received support from local governments in non-communicable disease (NCD) management, primarily in the form of equipment or commodities (75.5%) and 23.4% had support as budget allocations. External supervision was reported by 91.5% of the facilities, with 72.9% having supervision from outside within the past four months and 27.1% having supervision from outside more than four months ago.

Table 3. Provision of Primary Health Care Facility. (n= 117)

Characteristics	Frequency	Percent (%)
Conducted Staff Meeting (n=117)		
Yes	103	88.0
No	14	12.0
Frequency of Staff Meeting(n=103)		
Monthly or more frequently	50	48.5
Once every 2-3 months	42	40.8
Occasionally	11	10.7
Maintained official records of meeting (n=103)		
Yes	95	92.2
No	8	7.8
Observed record of recent meeting (n=95)		
Observed	93	97.9
Not observed	2	2.1
Type of meeting agenda (Multiple response)		
HMIS data quality	72	75.8%
HMIS reporting	65	68.4%
Timeliness of HMIS	41	43.2%
Quality of service	56	58.9%
Client utilization	38	40.0%
Disease data	34	35.8%
Employment condition	8	8.4%
Finance	16	16.8%
Prepared Action plan based on last meeting (n=95)		
Yes	69	72.6
No	26	27.4
Formed HFOMC		
Yes	112	95.7
No	5	4.3
HFOMC guidelines was available		
Observed	57	48.7
Reported not seen	24	20.5
Not available	36	30.8
Type of available HFOMC guidelines (n=57)		
National Health Training Center	48	84.2
Own	5	8.8
Both	4	7.0
Availability of Complaint box		
Yes	31	26.5
No	86	73.5
Annual audit report was available		
Yes	33	28.2
No	84	71.8
Citizen's charter was available		
Yes	82	70.1
No	35	29.9
List of essential medicine was available		
Yes	85	72.6

Table 3. Provision of Primary Health Care Facility. (n= 117)

Characteristics	Frequency	Percent (%)
No	32	27.4
Local government supported in NCD management		
Yes	94	80.3
No	23	19.7
Type of support received		
Financial	22	23.4
Equipment/medicine	71	75.5
Others	1	1.1
External supervision from higher authority		
Yes	107	91.5
No	10	8.5
Last time supervision from outside (n=107)		
Within the past four months	78	72.9
More than four months ago	29	27.1
Frequency of supervisor visit (n=107)		
Randomly / no routine	47	43.9
Weekly	1	0.9
Monthly	5	4.7
Every two months	12	11.2
Once in three months	13	12.1
Once in four months	25	23.4
Others	4	3.7

Functioning and Support from Local Government for the Prevention and Control of Selected NCD

Data presented in table 4 shows that the majority (88%) of health facilities conduct regular meetings with the staff. Among those who conduct the regular meeting less than half (48.5) conduct the meeting monthly or more frequently. The majority of health facilities (95.7%) have health facilities management committees. Among those health facilities that have management committees, more than half of health facilities have conducted orientation and routine meetings occasionally. The majority of health facilities (80.3%) have received support from local government.

Table 4. Activities from local government for the prevention and control of selected NCD.

Variable	Category	Frequency (n)	Percentage (%)
Regular meeting of health facility management of staff	Yes	103	88.0
Frequency of staff meetings held (n=103)	Monthly or more frequently	50	48.5
	Once every 2-3 months	42	40.8
	Occasionally	11	10.7
Have health facility management committee	Yes	112	95.7
Orientation for Health facility management committee held (n=112)	Yes	59	52.7
Routine meetings of health management committee held	Yes	59	52.7
Frequency of health facility management committee meeting held (n=59)	Monthly or more frequently	6	10.2
	Every 2-3 months	22	37.3
	Occasionally	31	52.5
Received support from local government	Yes	94	80.3
Types of support received from local government (n=94)	Budget	22	23.4
	Equipment or commodities	71	75.5
	Others	1	1.1

Service Readiness for Non-Communicable Diseases

Data in table 5 presents the scores for service-specific domains and overall service-specific readiness related to non-communicable diseases. The service-specific domain median percentage scores range between 33% and 57%, indicating variations in readiness across

Table 5. Service Readiness for Non-communicable diseases.

Domain	Items studied	Median score	Min-Max	Median Readiness percentage	Min-Max (In percent)	Readiness status n (≥70%)
Basic amenities	7	4	1-7	57.14	14.29-100.00	26(22.20)
Training	4	2	0-4	50.00	0-100.00	41(35.00)
Diagnosis	7	3	0-7	42.85	0-100	24(20.50)
Medicine	6	2	0-6	33.33	0-100	4(3.40)
Total	24	12	4-22	50.00	17-92	7(6.00)

Note: A percentage score of 70 or above is considered the readiness

different domains. However, the overall readiness status of the health facilities for non-communicable diseases was alarmingly low, with a mere 6% score.

Factors Associated with NCD Service Readiness

In bivariate analysis, the type of health facility and annual social audit was the variable, which show significant association with NCD service readiness. Data in table 6 presents the findings of multiple logistic regression analyses conducted to evaluate the readiness of non-communicable disease (NCD) services with independent variables. In the multiple logistic regression analysis, various organizational characteristics were examined to determine their impact on the likelihood of primary health facilities being prepared to deliver NCD services. The results indicated that Primary Hospital/Primary Health Care Center/Urban Health Promotion Center (HP/PHCC/UHPC) facilities were more likely [AOR=93.60, 95% CI (7.28-1202.23)] to have NCD service readiness compared to Health Post (HP), Urban Health Center (UHC), Basic Health Center (BHC), and Community Health Center (CHC) facilities. Additionally, health facilities that conducted annual social audits were approximately three times (P-value = 0.01) more likely to be ready to provide NCD services.

Table 6. Factors Associated with NCD Service Readiness.

Organizational characteristics	NCD service readiness			
	Unadjusted OR (95% CI)	P-value	Adjusted OR (95% CI)	P-value
Facility location (Urban Vs Rural)	0.42(0.09-2.01)	0.42		
Type of Palika (Municipality Vs Rural Municipality)	0.44(0.95-2.09)	0.42		
Facility type (PH/PHCC/UHPC Vs others)	145.30 (12.25-1723.99)	*0.001	93.60(7.28-1202.23)	*0.001
Meeting conducted for the health facility management (Yes vs No)	0.93 (0.88-0.98)	0.56		
Record keeping of meeting of health facility management (Yes Vs No)	0.47(0.50-4.44)	0.44		
Action plan based on latest meeting minutes (Yes Vs No)	0.70(0.12-4.12)	0.65		
Was Complaint box available (Yes Vs No)	4.09(0.86-19.47)	0.07		
Annual social audit (Yes Vs No)	7.32(1.34-39.87)	*0.01	3.47(0.43-27.95)	0.26
Citizen charter placed at facility (Yes Vs No)	0.54(0.11-2.58)	0.42		
List of free medicine made publicly (Yes Vs No)	0.93(0.17-5.09)	0.67		
Facility supported by local government (Yes Vs No)	0.59(0.10-3.25)	0.62		

* Statistically significant at p<0.05

DISCUSSION

The study aim to assess health facilities readiness for selected NCDs and associated factors among primary healthcare facilities in Syangja District. The overall mean readiness score to provide services for NCD was 11.73±3.51. After adjusting for other background factors, institutions with higher scores for basic amenities were more likely to be prepared to provide care for selected NCDs. Similarly, the overall readiness percentage of health facilities to provide services was 48.89±14.66. The result resembled with other study done in Nepal, which had average readiness percentage of 49.0 and other developing countries like Bangladesh, Haiti, Malawi and Tanzania with readiness percentage of 44.5, 46.4, 48.1, and 47.1 respectively.[8] Similarly studies conducted on the service readiness of health facilities in Bangladesh, Haiti, Kenya, Malawi, Namibia, Nepal, Rwanda, Senegal, Uganda, and the United Republic of Tanzania also depicted the mean values to be 77% for the 636 hospitals and 52% for the 7807 health facilities.[8, 9]

In our study, readiness percentage for medicine was lowest which was followed by diagnosis i.e., 3.4% and 20.5% respectively. Likewise in the above mentioned study done in 10 countries also represented the common deficiencies in medicines and diagnostic capacity across the countries.[10] All these mentioned countries are developing countries, which might be the factor for the resemblance of the status. In our study, although the readiness status for training was 35% but the mean score was very low (1.94±1.6/2.0). In addition, the Nepal Health Facility Survey (NHFS) 2021 has low mean score on trained staff i.e., 2. The data indicates similarities between our research and the national study. In our study, the readiness percentage of basic amenities was 57.87 (95% CI: 45.6-70.14) which is more than the readiness percentage of basic amenities in Ethiopia which is 47%.[11] Likely, in Terai, Hill and the Mountain regions, the readiness score were 88.7, 85.6 and 77.8 respectively.[12] Likewise, in recent study in Nepal also the mean domain scores for basic amenities was 53.7 (±SD 21.3).[13]

The factors associated with the service readiness identified in this study were similar in some aspect and contradict in others to the findings from other studies. In our study, Primary Hospital/Primary Health Care Center/Urban Health Promotion Center (PH/PHCC/UHPC) facilities were more likely to have NCD service readiness compared to Health Post (HP), Urban Health Center (UHC), Basic Health Center (BHC), and Community Health Center (CHC) facilities. In comparison to Health Posts and other facilities, Primary Hospitals and Primary Health Care Centers were found to be more likely to be prepared to provide NCD care, according to a study utilizing the Nepal Health Facility Survey (NHFS) 2021 data. A study of a facility-based cross-sectional survey conducted in Tanzania between 2014 and 2015 revealed that higher-level (health centers and hospitals) and publicly owned health facilities had better service readiness indices for providing care for NCD services.[12,14]

Our research showed that yearly social audits conducted under external supervision had a significant association with the preparedness of NCDs. Mechanisms for external oversight in HFs are crucial for streamlining the whole management process and increasing the facility's efficiency. Information exchange, the system of collecting feedback from clients and performance evaluation are made possible by such social audits, which are essential for simplifying and improving the facility's management procedure.[15] Similar to our findings, earlier research has revealed differences in the accessibility of healthcare services to prevent and control of NCDs among healthcare levels, HF types, and geographic contexts.[16] Another study also indicated that the system of collecting feedback from clients and external supervision in the last 4 months was associated with higher readiness scores compared to facilities not having such feedback process and supervision. A study from Zimbabwe performed a randomized controlled study to examine the effect of supervision on stock management, or the rational use of medications, and they discovered that health facilities getting supervision significantly improved their stock management indicators compared to those not receiving supervision. The results of the study demonstrated that health professionals' overall performance was positively impacted by supervision in a different service area. Investments in frequent monitoring of primary healthcare providers can thus have a favorable impact on the management of medicine and equipment inventories. Furthermore, the higher readiness score among institutions that include a client feedback system shows the importance of patient experiences and input in terms of service improvement.

CONCLUSIONS

Overall readiness status of primary health care facilities was very low i.e., 6% for the non-communicable disease. The findings revealed that Primary Hospital/Primary Health Care Center/Urban Health Promotion Center (HP/PHCC/UHPC) facilities were more likely to have NCD service readiness than Health Post (HP), Urban Health Center (UHC), Basic Health Center (BHC), and Community Health Center (CHC) facilities. Furthermore, health institutions that performed yearly social audits were nearly three times more likely to be prepared to deliver NCD care.

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CONFLICT OF INTEREST

There is no conflict of interest in this research work.

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