Community Project of early detection of Hypertension: in Kirkuk –Iraq achievement and challenges

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Introduction

In (2008) the World Health Organization held a congress on a package of essential non- communicable disease (NCD) specially in low- resource setting countries; the main component of the project was to provide affordable and cost- effective method for early detection of diabetes, hypertension, chronic respiratory disease and cancer, the final project was termed (PEN) **(1).**

In Iraq unfortunately, there are limited published studies and local researches regarding the program of early detection of H. T, since the lunch of PEN project; however, interesting study was published in 2024 exploring the application of the project in Duhok; which should a highly hazardous number, as 41.3% of the selected sample had hypertension among total data including 4120 subjects, which was markedly higher than (STEPS) survey in 2016 that reported the prevalence being 35.65% **(2)**.

Generally, NCD, have preclinical stage and available tests to detect these stage by reliable and acceptable tests and the best policy is screening population by systemic ongoing continuous procedure and hat isolated one time effort **(3).**

In 2024 a new national project in Iraq, has been a ranged to expand (PEN) program to include wider range of population under the same inclusion criteria of the (PEN) to screen people who are hat aware or not satiated by PHCCS protocol or people who neglect the second visit the project was termed (Community project for early detection Hypertension).

Aim of the study

The aim of the current study is to compare the frequency of early detection of hypertension between the community population and attendance to PHCCS in the same time line of study.

Subjects and Methods

This case control study being community- based screening for early detection of hypertension among adult persons including (17938) total subjects attended PHCCS in (6) Kirkuk districts (Kirkuk1, Kirkuk2, Dakuk, Hawyga1, Hawyga2, Dibis).

The comparison group included, persons who had been screened during the same period among persons who attended the PHCCS who were candidate to be included in PEN program matched to age in the community project group. Regarding the information list, history of not communicable disease has been explored among all participants following the agreement on informed consent for each subject, The total number of comparison (control) group was (8433) who were registered, screened and diagnosed within the same period.

-Inclusion and Exclusion Criteria

All permanent residents of 20 year and above were included in the study involving both sexes, while those living in temporary settings or internally displaced persons were excluded according criteria of WHO PEN project.

-Facilities and Equipment

According to the priorities of set of technologies and recommendation of MOH to get successful outcome of the project, the following equipment were supplied to full teams to carry on the steps of the study, they included.

1-Glucometer.

2-Stethoscope.

3-Sphmomanometer.

4-Urine strip test.

5-Bloodglucose strip test.

6-Lipid profile assay.

The steps of the program was followed by 1st screening tests, followed by advice to get the second diagnostic (visit) to confirm the existence of the tested NCDS; and calculating risk assessment of the next 10 years of CVD, according to official questionnaire form of ministry of health.

It is worth wise to mention that the PEN program in the PHCCS is a passive surveillance of NCD, while the community project is an important and active surveillance for screening and diagnosing and early detection of NCD and not only the iceberg cases.

Results

A total of (26371) individuals were enrolled in the current study, out of them (68.01%) (17938) were participated in the community project 2024, and (8433) were collected among those attending PHCCS per PEN program initiated through directory of health, public health department since 2015.

Table-1- show the number of individual enrolled in the study, in both groups; the PEN program and the community project along two months from the lunch of the project.

It is clear that the highest frequency was in Kirkuk the first (8138) (45.3%) in the community project, while the lowest frequency was among Al- Hawyja the first (1011) (5.63%)

Regarding the PEN program, the highest frequency was in Kirkuk the second district, and the lowest was registered (2978) (35.31%) in Haweyja the second. (725) (8.59%).

Table-1- total number of participants in both PEN and Community project enrolled in the period of study.

Kirkuk Districts	No. of PHCCS	Participants in project (community)	Participants in PEN. (PHCCS)	Total
Kirkuk1	19	8138 (45.36%)	1393 (16.51%)	9531
Kirkuk2	17	5186 (28.91%)	2978 (35.31%)	8164
Dibis	5	1102 (6.14%)	1265 (15.0%)	2367
Dakuk	4	1245 (6.94%)	1097 (12.65%)	2342
Hawyja2	4	1256 (7.0%)	975 (11.56%)	2231
Hawyja1	4	1011 (5.63%)	725 (8.59%)	1736
Total	53	17.938 (68.01%)	8433 (31.97%)	26371

Table-2- demonstrates that the highest age group frequency registered in Kirkuk1 was among (35-49years), in a percentage of 49.29%, while in Kirkuk2 the highest frequency was among 20-34 years in a rate of 45.01% in community project while in PEN program the highest percentage was among the age group 20-34 years, in all districts, concerning the lowest registered individuals were among the age <65 years.

Table-2- Age distribution of enrolled participants.

Age/ Year	Kirkuk1		Kirkuk2		Dibis		Dakuk		Hawyge1		Hawyge2		Total
	Community	PEN	**Community**	PNE	**Community**	PEN	**Community**	PEN	**Community**	PEN	**Community**	PEN	
20-34	2180	471	2339	1800	388	521	600	450	511	220	799	621	10900
35-49	4002	421	1800	711	409	499	300	330	391	197	281	312	9653
50-65	1655	321	761	366	300	155	299	220	98	290	121	32	4618
>65	301	180	286	100	5	90	145	97	11	18	55	10	1298
Total	8138	1393	5186	2977	1102	1265	1344	1097	1011	725	1256	975	26469

Regarding sex distribution of two projects; in both projects female had higher percentage of registration than male, while the percentage of male was higher (45.30%) in community group in comparison to number of male in PEN group (37.69%). The gender distribution should that female attendance was higher than male in Dibis, Dakuk and Hawyga1 in a percentage higher than90%.

Table-3- Sex distribution of participants

District	Sex distribution					
	Community project			PEN project		
	Male	Female	Total	Male	Female	Total
Kirkuk1	4549 55.9%	3589 44.1%	8138	373 24.62%	1020 73.28%	1393
Kirkuk2	1967 37.9%	3219 62.0%	5186	1946 65.30%	1031 34.6%	2977
Dibis	100 9.07%	1002 90.93%	1102	165 13.04%	1100 86.95%	1265
Dakuk	123 9.87%	1122 90.12%	1245	175 15.9%	922 84.04%	1097
Hawyga1	101 9.99%	910 90.01%	1011	295 40.68%	430 59.3%	725
Hawyga2	569 45.30%	687 54.60%	1256	367 37.69%	608 62.35%	975

Table-4- show comparing the second visit, the highest percentage was among male in both groups, and the highest percentage in community group was reported in Hawyga1 district (78.5%) as well as in PEN program.

Table-4- Sex distribution of second visit of both groups

District	Community project			PEN program		
	Male	Female	Total	Male	Female	Total
Kirkuk1	3110 60.08%	2066 39.9%	5176	323 60.41%	211 39.5%	534
Kirkuk2	1299 40.72%	1891 59.20%	3190	390 65.0%	210 35.0%	600

Dibis	227 74.0%	103 26.0%	400	87 61.2%	56 39.4%	143
Dakuk	350 59.2%	241 40.70%	591	43 51.8%	40 48.1%	83
Hawyga1	41 97.0%	1 3.0%	42	52 89.7%	6 10.3%	58
Hawyga2	67 57.70%	49 42.3%	116	79 64.2%	44 35.7%	123

Table-5- Shows that the highest frequency of second visit was among male in community project Kirkuk1 (435 persons) in comparison to PEN program in the same district (88) . While the lowest number of second visit recorded in Hawyga2 in PEN program, as only 3 male and one female had attended.

Table-5- The frequency of diagnosed cases of second visit among the two group CPEN a community project of both sexes

District	Community project			PEN program		
	Male	Female	Total	Male	Female	Total
Kirkuk1	435 51.42%	411 48.58%	846	88 71.0%	36 29.0%	124
Kirkuk2	335 61.5%	210 38.5%	545	84 51.5%	79 48.5%	163
Dibis	297 80.7%	71 19.3%	368	29 82.9%	6 17.1%	35
Dakuk	99 81.8%	22 18.2%	121	13 52%	12 48%	25
Hawyga1	37 78.5%	9 21.7%	46	25 78.1%	7 21.8%	32
Hawyga2	31 91.2%	3 8.8%	34	3 75%	1 25%	4

Discussion

According to WHO repot (2024)NCD has been denoted as the leading cause of morbidity and mortality in Iraq.

The last survey has estimated that more than 30% of Iraq population are obese, 20% of male and 9% of female are to braces smokers in the age group 13-15 years, more than 30% have high blood pressure and 14% are diabetic and 11% had various types of cancer and cardio vascular diseases accents for 27% of total death **(4).** In 2018 the UN-had held the third- High level meeting on NCDS had added mental health and air pollution to the formal recognized 4 main NCDS and their 4 main risk factors, as CVD, cancer, diabetes and chronic respiratory disease, and the four modifiable risk factors as-Tobacco and alcohol abuse, unhealthy diet, and physical inactivity, adding to it the mental health has been nominated as (5*5) diseases **(5).** In recent years health services in Iraq undergone a transformation change by applying new paradigm shifting from curative and hospital- base to preventive care- based basically in primary health care centers.

Although Iraq has the lowest health expenditure per capita in the region, estimated as 145 in 2015; but Iraqi person pay about 70% in average out- of- pocket for health services that they receive

In 2021, Iraq ranking according to leg tum prosperity Index moved down from 108 to 113 out at 167, while it was near the bottom in Middle East and North Africa (MENA) ranking **(6).** In a study carried out to explore the perception of community on health services, 66.0% of studied samples preferred the previous health status before 2003 on various aspects, indicating the basic pillars of the society including healthy, education, community security and food security, as the PHCCS suffer from poor infrastructure which includes information technology, hygiene, quality and quantity of medical supply as drugs, laboratory, and radiology equipment **(7).**

In Iraq a second report was published in 2017 concerning the NCDS detection, it was reported that more than 5000000 screening tests for hypertension and 2000000 tests for diabetes were done in PHCCS since 2016, out of them 860000 were positive for hypertension and more than 270000 for hyperglycemia,() were positive, in a percentage of 17.2% for hypertension and 13.5% hyperglycemia, more over hypercholesterolemia was (39.6%), and 12% had estimated as high risk of cardiovascular attack **(8).**

WHO has classified CVD risk assessment as an important and one of the (Best Buy) interventions by the WHO, so the identified individuals at high risk should be targeted with preventive medication and lifestyle modification to prevent cardio vascular events **(9,10).**

In a study done in Baghdad in 2013, for detection of pre and hypertension among PHCCS attendants, it was proven that one fourth of the studied samples had hypertension, and male more affected more than female **(11).** In Kurdistan region (Duhuk) a study has been out by Khaleel B B *et al*, on screening of NCD, they found that 18.2% had DM, 4% had HT, and male subjects were predominantly affected in a ratio of 2.5: 1 **(12).** In Sri Lanka, a mixed innovative methods- study was carried out by strengthening project of PHCCS to screening and early detection of NCDS, using the key features of reorganization by; empanelment of the population by creation a personal health record (PHR) for each individual, followed by screening by activity used methods, then follow up and referral system of candidate cases, to innovative and integrative Healthy Lifestyle Centers (HLCS),these three steps had led to better follow up and good quality and outcome services in the following years **(13).** In a study done in India and Indonesia on community level included 5143 and 1806 participants respectively, showed that 24.7% male and 18.8% female had HT in India while. 9.2% male 8.6% female in Indonesia had HT **(14).** In 2015 steps survey, in Kirkuk the percentage of HT among survived sample was 18.5% among PHCCS attendees **(15).** Abdul- Hassan M *et al*, has reported that about 55.7% of the studied sample had prehypertension, 24% had established hypertension, 14.6% were in stage1 HT and 9.4% were in stage2 HT **(16).**

Regarding the results of the current study, the percentage of 2nd visit of the community project was (36.60%) while the percentage of diagnosed cases other the second visit was 9.16%, in Kirkuk1, while in Kirkuk2, the frequency of 2nd visit was 61.51% while the percentage of diagnosed cases of HT was 10.50%. Regarding Dibis district the percentage of 2nd visit was 36.2% while the frequency of diagnosed cases was 33.39% .

Recommendation

The deficiencies in documentation as incomplete data paper based format, lack of fixed record templates, overcrowding were noted at all levels of health provision; so there is urgent need for reorganization and follow the Sri Lanka project for improving, recoding, reporting, screening and follow up of all NCD.

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