Study of Factors Influence to Poor Attendance for the Second Diagnostic Visit to the Pen Program of Early Detection of Diabetes and Hypertension in PHCCs in Kirkuk, Iraq

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ABSTRACT

PEN was held in PHCs in Kirkuk city by WHO. To prevent and control the NCD and to provide a cost-effective approach for early detection of D.M and hypertension by recognition the preclinical stage of the disease.

With selecting 5 random chosen PHCCs in first primary health district, for the month between (January to end of July) 2018. With using very simple techniques, in very limited resources for PHCs, The results showed the highest percentages of attending the NCD unit was in Tareeq – Baghdad, while the lowest in Tissin, and the females are more than the males. The highest percentage registered for hypertension was in Baglar , while the highest positive screened was in Tissin. For D.M. the highest no. of visitor registered for first and second visit was in Baglar. This gives as a conclusion that there was a defect in screening program regarding the second visit in NCD unit in PHCs.

Keywords: Risk factors, PEN, Poor attendance, Screening.

اسباب عزوف المراجعين عن الزيارة التشخيصية الثانية لبرنامج الكشف المبكر عن ارتفاع ضغط الدم والسكري في قطاع كركوك الاول.

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الملخص

تم أدخال برنامج حزمة البيانات للكشف عن الأمراض غير الإنتقالية في المراكزالصحية في كركوك لغرض السيطرة على هذه الأمراض ومن ضمنها مرض السكر والضغط وذلك لتوفير الكلفة العلاجية بعد ظهور أعراض الإصابة بالمرض عن طريق الإستدلال بالكشف المبكر عن الحالات قبل ظهور الأعراض في وحدات الأمراض غير الإنتقالية في المراكز الصحية . وتم إختيار عشوائي لخمسة مراكز صحية ضمن قطاع كركوك الأول للفترة في (كانون الثاني لغاية نهاية تموز) 2018، بإستخدام ابسط الأجهزة والوسائل للكشف المبكر مع الأخذ بنظر الإعتبار ضعف التجهيزات اللأزمة للوحدات هذه.

وأظهرت الدراسة أن أعلى نسبة مئوية لمراجعي هذه الوحدات هم في (م.ص. طريق بغداد) وأقلها في (م.ص.تسعين)،وأن نسبة الإناث هي أعلى من نسبة الذكور بصورة عامة .وبخصوص مرض أرتفاع الضغط ، فإن الدراسة أظهرت أن أعلى نسبة سجلت في (م.ص.بكلر) في حين أن أعلى كشف تم إيجابي في (م.ص.تسعين) للضغط.

أما بخصوص مرض داء السكري فإن أعلى نسبة عدد المراجعي للزيارة الاولية للكشف عن السكري والزيارة الثانية للتشخيص سجلت في (م.ص.بكلر). هذا يدل عللى أن هنالك ضعف في أداء الوحدات الخاصة بالأمراض غير الإنتقالية للمراكز الصحية في عملية الكشف المبكر للإمراض في خلال الزيارات الأوللى والثانية للوحدات .

الكلمات الدالة: عوامل الخطورة , حزمة الخدمات الاساسية للامراض غير الانتقالية , ضعف الزيارات , الكشف الاولي.

1. Introduction

For primary health care, the world health organization (WHO) had held a congress in 2008 on the intervention of a package of essential non-communicable disease (NCD) in a low resource setting. The plan was implemented for the prevention and control of NCD. In primary health clinics (PHCs), one of the key components of the project was to provide a cost-effective approach for early detection of diabetes, cancer and chronic respiratory disease. The project was given the abbreviated term WHO-PEN [1]. According to WHO statistics, the global world is divided into different geographic regions accordingly: 1) Africa; 2) America; 3) Eastern Mediterranean; 4) Europe; 5) South-east Asia; and 6) Western Pacific. The largest increase in the death rate from cardiovascular disease, diabetes, respiratory disease and cancer may occur in developing countries [2].

To correctly implement the project, the assessment of capabilities and health infrastructure is one of the important steps of integrating the WHO PEN into primary health care. This tool will gather information about program priorities, health care management, financial decentralization and community involvement [1].

To reduce the burden of NCD, the main strategy is effective and affordable medicines availability. Unfortunately, they are unavailable in many countries, or they are of poor quality [3]. The expectation of benefits of implementing WHO PEN primary are: 1) equity and efficiency of PHC; 2) prevention and control of major NCD; and 3) health care workforce reinforcement [4]. It is well known that the screening in asymptomatic populations is optimal under severe conditions. The disease has a public health impact and understood natural history. Furthermore, it has a recognizable preclinical stage and available tests to detect preclinical stages of being reliable and acceptable. Moreover, the cost-benefit of the test is reasonable, and finally, the screening will be a systematic ongoing process and not isolated one-time effort [5].

This study aims to explore the factors that affect the weak response of attendants to primary health care centers for the diagnostic second visit following the first screening one. So, it is a trial to resolve the problem according to available facilities. For this purpose, we develop conceptional project for a package of essential NCD interventions and strength the disciplines of PEN WHO of PHC in the following conditions: 1) Low-resource settings; 2) early identification of serious NCD by new, available and affordable technologies; and 3) medicines and risk prediction charts as assistant tools. Consequently, developing operational integration of essential NCD intervention into primary care followed by evaluation of its impact. It is worth mentioning that all the mentioned steps are the principle rationale for right functioning health systems as a vital process for the control and prevention of NCDs [6].

2. Methodology

A cross-sectional design was applied for the current study. A convenient sampling method was selected to detect early screening for NCD through the available statistic (retrograde), gathered from the first primary health district, which population is 458984.

3. Materials and Methods

3.1 Study Sitting

Kirkuk governate is one of the federal governate of Iraq, situated between the north and middle of the country. According to 2017 statistics, its population is about 1,059,876 people.

3.2 Sample Frame

The sample frame consisted of the population of Kirkuk of which 458984 is the study sample of the first primary health district.

3.3 Inclusion and Exclusion Criteria

All permanent residents of 20 years and above were included in the study involving both genders. Internally displaced persons and those living in temporary settings were excluded in agreement with WHO PEN project. According to WHO PEN project, one of the fundamental points in the road map of success of the program is the availability of essential and affordable technologies (which are currently utilized internationally to the management of NCDs).

It is important to mention that the real challenge in the application of the project is the poor investment and inadequate supply in many low-resource settings. Consequently, there is a need for a prioritized set of technologies to be available. The best currently available equipment in Iraq are as follows:

1. Stethoscope.
2. Blood pressure measurement device.
3. Weighing machine.
4. Glucometer.
5. Blood glucose test strips.
6. Urine test strips.
7. Urine ketone test strips.
8. Electrocardiography.
9. If the resources permit these equipment's should be added, as nebulizer and defibrillator.

Contrastly to these, the unavailable equipment's in primary health care centers (PHCCs) in Iraq are as follows:

1. Thermometer.
2. Peak flow meter.
3. Spacer for inhalers.
4. Blood cholesterol assay.
5. Lipid profile.
6. Serum creatinine assay.
7. Troponin test strips.
8. Urine microalbuminuria test strips.
9. Tuning fork oscillators.

This secondary study was an exploratory design of an information system of the PHC center. The information included the total number of people enrolled in the PEN program with a risk of NCD who were tested for screening and advised for the diagnostic visits (second visit) following the first visit.

The samples were stratified according to age, gender, smoking, habit, history of hypertension, diabetes mellitus and the risk assessment of the next ten year of CVD (according to official questionnaire form of ministry of health, NCD department (that included the previously mentioned information).

4. Results

Out of the five randomly selected PHCCs, a convenient sample was selected in the current study including all the attendants for a screening of hypertension and diabetes mellitus. The aging was ($\geq$ 20 years) for hypertension, while it was ($\geq$ 40 years) for diabetes mellitus. Table 1 shows the total number of attendants to the five selected PHCCs for the period of the study from January – July 2018. The highest number of the attendants was found in Al-Salam PHCC (7394) followed by Tareeg Baghdad (6897), and the lowest was in Baglar (4629).

Table 1: Total number of attendants to the PHCCs.

Month	PHCC				
	Al-Mansoor	Tissin	Tareeg-Baghdad	Al-Salam	Baglar
January	923	907	1225	1073	1299
February	791	808	1036	1102	562
March	752	826	848	1191	643

April	779	770	1146	1083	637
May	549	617	952	1007	478
June	427	455	866	1012	412
July	850	812	824	926	598
Total	5071	5195	6897	7394	4629

Table 2 illustrates the total number of attendants to the NCD unit of the PHCCs during the study period. It is clear that the highest percentage who attended the unit was in Tareeq-Baghdad (42.7%) and the lowest percentage was in Tissin (7.35%). More specifically, as listed, Table 3, regarding gender distribution, it is clear that the attending of females was higher than males as 1962 (63.1%) versus 1144 (36.8%).

Table 2: The total number of attendants to the NCD unit of the PHCCs.

PHCC	Total number of visitors to PHCC	Number of visitors to NCD	Percentage (%)	Number of registered cases	Percentage (%)
Al-Mansoor	5071	1930	38.0	475	9.3
Tissin	5195	382	7.35	194	3.7
Tareeg-Baghdad	6897	2944	42.7	463	6.7
Al-Salam	7394	624	8.43	539	8.0
Baglar	4629	1822	39.3	1435	31.0
Total	29186	7702	26.3	3106	10.6

Table 3: Gender distribution of the registered cases in the PHCCs.

PHCC	Number of males	Percentage (%)	Number of females	Percentage (%)	Total
Al-Mansoor	107	22.5	368	77.4	475
Tissin	69	35.5	125	64.4	194
Tareeg-Baghdad	149	32.21	314	67.8	463
Al-Salam	219	40.6	320	59.3	539

Baglar	600	41.8	835	58.1	1435
Total	1144	36.8	1962	63.1	3106

Table 4 summarizes the total number of registered cases and screened for hypertension (20 – 39 years). The results show that it is clear that the highest percentage registered was in Baglar (38.8%) while the highest positive screened was in Tissin (38.1%). The overall positive screened attendants were 753 (24.2%) out of total attendants. Table 5 presents the total number of registered cases and screened for diabetes mellitus. The highest percentage registered in the first visit was in Al-Salam (35.1%) regardless of Tissin due to the small number of registered cases in it, which was 13. Whereas, the highest number registered in first and second visits was in Baglar.

Table 4: Results of the screened for the 1st visit and 2nd visit for hypertension to the PHCCs

PHCC	Number of positive	Percentage (%)	Number of negative	Percentage (%)	Total	2nd visit
Al-Mansoor	37	7.7	438	92.2	475	0
Tissin	74	38.1	120	61.8	194	4
Tareeg-Baghdad	79	17.0	384	82.9	463	2
Al-Salam	185	34.3	354	65.6	539	5
Baglar	378	26.3	1057	73.6	1435	7
Total	753	24.2	2353	75.7	3106	18

Table 5: The screening result of diabetes mellitus (40 years and more) for 5 PHCCs.

PHCC	Number of positive	Percentage (%)	Number of negative	Percentage (%)	Total	2nd visit
Al-Mansoor	26	17.3	124	82.6	150	0
Tissin	5	38.4	8	61.5	13	0
Tareeg-Baghdad	0	0	54	100	54	0
Al-Salam	19	35.1	35	84.8	54	3
Baglar	285	33.1	565	66.4	850	7
Total	335		786		1121	10

5. Discussion

Health improvement generally requires strengthening four crucial domains of the health care system: 1) health care delivery; 2) public health; 3) researches; and 4) personal health management. In contrast, poor quality services may be due to: 1) inaccessible data and information; 2) lack of knowledge; and 3) poor documentation. Whereas, the ministry of health (MOH) is concerned in improving primary, secondary and tertiary health services [7].

In high-income countries, the total coverage of health insurance plays crucial role in ratio of adherence to medical services. In contrast, the low and middle income once in which these services are limited (8). It is worth mentioning that the adherence is defined as the extent to which a person's behavior, taking medications, following a diet and lifestyle changing corresponds with agreed recommendations from a health care provider (14).

MRFIT study in 1982 had a prospective cohort study through which 12,866 men were followed up for seven years after full advice was applied to them. With a comparative control group, the result showed that ischemic heart disease (IHD) mortality was reduced by 22% more in the international group; but it was not significant statistically. This reason was the selected sample had changed their lifestyle and studied preventive method [9].

In Iraq, the NCD accounts for 44% of death, as diabetes, stroke, heart disease, cancer, and respiratory disease are the leading cause of mortality. According to Iraqi Family Health Survey, it was clear that the most frequently reported non-communicable conditions were high blood pressure (41.5/1000) population followed by diabetes 21.8/1000 population. Whereas, the stepwise risk factor survey 2006 showed that 37.7% had hypercholesterolemia. All these factors have led to strengthening the integration of NCDs into PHCCs is partially successful and gradually moving towards 50% coverage. Furthermore, focusing on Hypertention, Diabetes Mellitus and recently on Asthma and risk prediction of Cardiovascular diseases [10].

According to the results obtained from MOH statistics, the total screened cases was high in 2009 as (18.5%), which declined to (13.6%) in 2016. This may be related to many factors influencing the weak adherence to negative themes of the patients attending the PHCCs in addition to overcrowding and unstable security. Furthermore, the lack of well-trained health care workers regarding the knowledge and skills in dealing with these cases. Moreover, the lack of equipments that are necessary to

implement the program. Besides, the weak or the absent role of the media on disseminating the new and emergent health projects regarding the setup of early detection. Additionally, the non-availability of information regarding patient's perspectives on the disease aspects may be one of the most contributing factors regarding poor or non-adherence (11).

According to the official reports of MOH, since the application of the PEN program, it was documented that the rate of screening for hypertension was in the range of (14.3 % - 19.3%). According to the annual evaluation between years (2009-2017), the highest rate being in the year 2009 and the lowest in the year 2015 (19.3%, 14.3%). Additionally, regarding the workup on Diabetes Mellitus, it was proved that the rate of positive screening for diabetes mellitus was 13.6% in 2016. Besides, the number of diagnosed cases was 7235, while the number of confirmed cases of diabetes mellitus was only 10. Furthermore, regarding the loss to follow up, it is proved that more than 50% are not attending for follow up after three visits, although it is obvious that the program was feasible [12].

For the management of NCD worldwide and specifically in low or limited-resource countries as Iraq, the need for equipments are: 1) Electrocardiogram (ECG); 2) body meters; 3) glucometers; and 4) the consumables like (risk assessment forms, ECG jelly, glucometer strips and batteries) need to be available [13]. Consequently, the factors affecting adherence are as follows:

1. Socioeconomic as long-distance from treatment settings.
2. Health care workers related factors, like a lack of knowledge of health professionals about the program.
3. The nature of the illness.
4. Patient-related factors, such as:
    a) Forgetfulness.
    b) Misconceptions.
    c) Difficulty in understanding the condition.
    d) Feeling that the program is not important to overcome the resistance to continue the adherence. Consequently, follow up more appropriately to rationalize and restructure the works job and schedules to accommodate and accept the projects' new applications.
    e) Patients are under anxiety about the diagnosis and fear about the disease if diagnosed and continuous dependence on drugs if needed.

6. Conclusion

In this article, we investigated the factors that impact on the weak response of attendants to primary health care centers for the diagnostic second visit following the first screening one. We conclude that

there was a defect in the screening program for early detection of diabetes mellitus and hypertension in PHCCs in Kirkuk regarding the second visit for confirming the diagnosis.

7. Recommendations

The followings are recommended from the results of the study:

1. Strengthening the education program in health promotion in PHCCs.
2. Investment of social media to explore the importance of vitality of early diagnosis of non-communicable diseases in Iraq.
3. Concentrating the act on supplementing the required equipments in PHCCs.

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