Research Article

Demographic and Disease Patterns at a Primary Healthcare Setting

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Abstract | The assessment of disease pattern and burden in a defined population based on the symptomatology as well as the organic presentation is quite fruitful.

Objectives: This study was designed to determine demographic characteristics and disease patterns related to different organ systems presenting at first tier of primary healthcare system.

Methods: A cross-sectional study was conducted using Basic Health Unit's (BHU) Outdoor Patient Department (OPD) database retrospectively in order to determine the age, gender and organ system wise distribution of various diseases. Secondary data was collected from standard OPD register in which all patients that presented in the outpatient department of the facility during a period of 6 months from 1ˢᵗ January, 2017 to 30ᵗʰ June, 2017 were included and no patient was excluded.

Results: Out of total 2357 patients, 1024 (43.4%) were males and 1333 (56.6%) were females. Most of the patients 1057 (44.8%) belonged to the age group of 15-49 years whereas only 96 (4.1%) were less than one year old. About 2204 patients (93.5%) presented for the first time to the BHU and 153 patients (6.5%) were follow-up patients. Majority of patients 735 (31.2%) presented with symptoms of respiratory system. Certain systems were more involved in females than males like musculoskeletal system (257 v/s 113), respiratory system (377 v/s 358) and especially the genitourinary system (50 v/s 5).

Conclusions: Addressing and treating the diseases presenting at this basic level (BHU) can prove to be very useful in reducing patient load at the level of tertiary care and teaching hospitals.

Introduction

The assessment of disease burden in a defined population based on the symptomatology as well as the organic presentation is quite fruitful as far as the distribution of various health care facilities by the government among different geographical areas is concerned. The control and elimination of different chronic as well as epidemic diseases in a defined population is now recognized as a priority for achieving Sustainable Development Goals (SDGs) and targets for sustainable poverty reduction [1]. The poor people living in under developed areas of developing countries mostly die of chronic bacterial, viral, fungal and parasitic diseases [2] that need to be quantified in order to implement an effective health care policy. A rise in the disability-adjusted life years due to years lost to disease over a period of 23 years (1993-2013) in 188 countries was seen from 21.1% to 31.2% [3] which clearly emphasizes on the importance of as-

sessment of disease burden in developing countries.

Pakistan being a developing country has a diversity of health care problems and diseases that act as a huge health care problem. The vast spectrum of diseases present in a defined population, most of which are reported and treated at local level, but the need of quantification as well as burden assessment still remains unmet The imminent need of morbidity assessment can prove to be the key in the development of an up to date health care system that might prove useful in decreasing this disease burden. The difference in symptomatology in different age groups often makes it difficult to quantify diseases based solely on the basis of symptoms. However, investigations of adult health care issues is more difficult, given a lower event rate, greater mobility, and more heterogeneity in the symptoms and signs of illness and causes of death than in children [4].

Being the 6th most populous country in the world[5], the people of Pakistan especially those living in the highly populated areas of Punjab are prone to develop different heath care problems. Pakistan an infant mortality rate of 54/1,000 live births [6] and the people here are highly vulnerable to waterborne diseases [7]. There are around 3000 functional health care facilities in Punjab out of which around 2500 are Basic Health Units [8] which are the first point of contact between the patient and physician.

Basic Health Unit (BHU) 14/1AL Renala Khurd is an important Health Care Facility located in District Okara, Punjab receiving almost 60-100 patients daily. Renala Khurd is located 116km from Lahore, 18km from Okara, having a population of 72,724 [9] with a population growth rate of 3.41%. The ailments addressed at this facility along with other Basic Health Units decrease the load that ultimately present to the tertiary care hospitals in Faisalabad, Sahiwal, Multan and Lahore. The vast diversity of diseases presenting on daily basis to this facility needs to be quantified on the basis of age and gender, and presenting symptoms of the diseases and organ systems involved. The burden of various diseases also needs to be calculated as was done in India [10], United Kingdom[11], South Africa [12], and Malaysia[13]. The data of patients from this facility over a period of 6 months will eventually prove effective and helpful in the priority setting, placement of well-planned policies and appropriate resources to disease control at local levels so that the

mortality and morbidity may be reduced and patient load may be filtered before reaching the tertiary care hospitals.

Materials and Methods

The researchers conducted a cross-sectional study using Basic Health Unit's Outdoor Patient Department database retrospectively in order to determine the distribution and burden of various common diseases. The Basic health unit 14/1AL is located in Renala Khurd, District Okara. Written permission for retrospective data collection was obtained from the concerned authority that is the Deputy District Health Officer Renala Khurd. Confidentiality and other ethical considerations were observed. Secondary data from the OPD register was used in which all patients that presented in the outpatient department of the facility during a period of 6 months from 1st January, 2017 to 30th June, 2017 were included hence no patient was excluded.

Data for each individual were collected from standard OPD register which contains a predefined pro-forma for each patient containing Socio-demographic characteristics, presenting symptoms, probable diagnosis on the basis of history and examination and actions taken for treatment or referral of patient. All the patients were categorized on the basis of symptoms into organ systems involved.

The data were entered into Statistical Package for the Social Sciences (SPSS) 21 for analysis.

Results

There were 2357 patients who were presented at the Basic Health Unit from 1st January 2017 to 30th June 2017. Out of 2357 patients 1024 (43.4%) were males and 1333 (56.6%) were females (Figure 1).
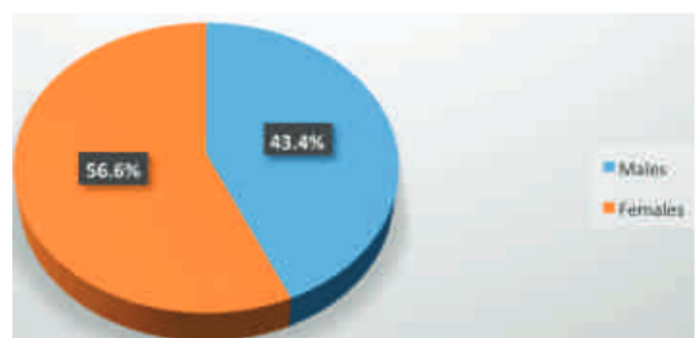

Figure 1: *Gender wise distribution of patients*

Most of the patients (n=1057, 44.8%) belonged to the age group of 15-49 years whereas only 96 (4.1%) were less than one year old. High numbers of patients 555 (23.5 %) were 50 years or above Figure 2.
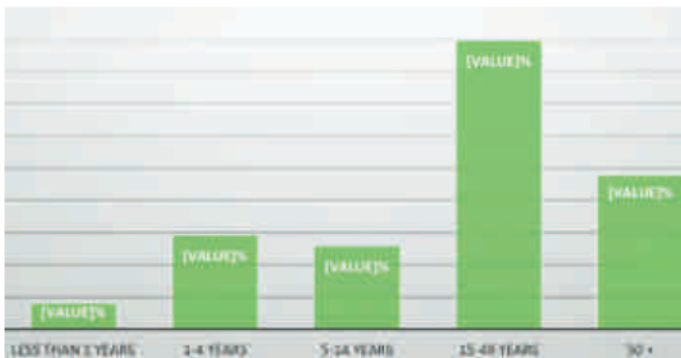
Figure 2: *Age wise distribution of patients*

A total of 2204 patients (93.5%) presented for the first time to the BHU ansd 153 patients (6.5%) were follow-up patients Figure 3.
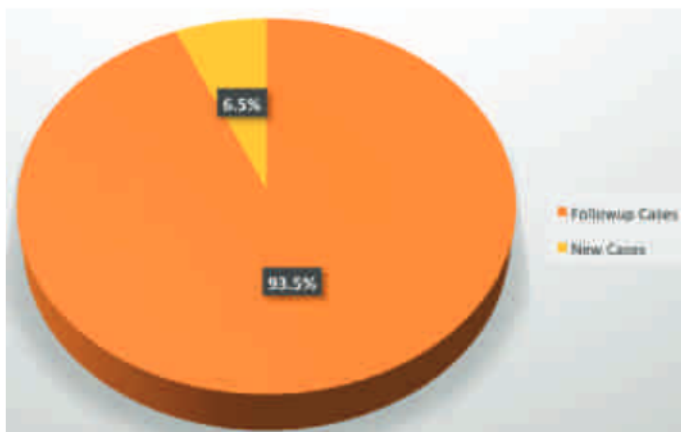

Figure 3: *Follow-up cases v/s new cases*

The presenting symptoms of the patients were organized into various organ systems. The maximum patients 735 (31.2%) presented with symptoms involving respiratory system. Second most common presentation was symptoms involving the musculoskeletal system. Dermatological systems were seen in 367 patients (15.6%). 348 patients (31.2%) presented with gastrointestinal symptoms. 90 patients (3.8%) presented with fever whose origin was unknown. Cardiovascular symptoms were seen in 87 patients (3.7%). 72 (3.1%) cases were road traffic accidents. 69 cases (2.9%) had allergic reaction whereas 55 patients (2.3%) presented with genitourinary symptoms. A total of 42 (1.8%) patients presented with dental problems whereas 36 patients (1.5%) have ophthalmic problems. Ear, nose and throat were the least involved organs having only 11(0.5%) cases Table 1.

Table 1: *Distribution of patients according to organ system involved.*

Organ System Involved	Frequency	Percentage
Respiratory System	735	31.2
Musculoskeletal	370	15.7
Dermatology	367	15.6
GIT	348	14.8
Pyrexia of Unknown Origin	90	3.8
CVS	87	3.7
Others	76	3.2
Accidental Cases	72	3.1
Allergy	68	2.9
Genitourinary	55	2.3
Dental	42	1.8
Eye	36	1.5
Ear	11	0.5
Total	2357	**100.0**

Comparing genders in organ systems involved showed us that certain systems like musculoskeletal system; respiratory system and especially the genitourinary system were more involved in females than males. Accidental cases were seen more in males as compared to females Figure 4. After applying chi-square test a statistically significant relationship between gender and organ systems involved was seen with p value of 0.000 meaning thereby gender does affect organ system involved.
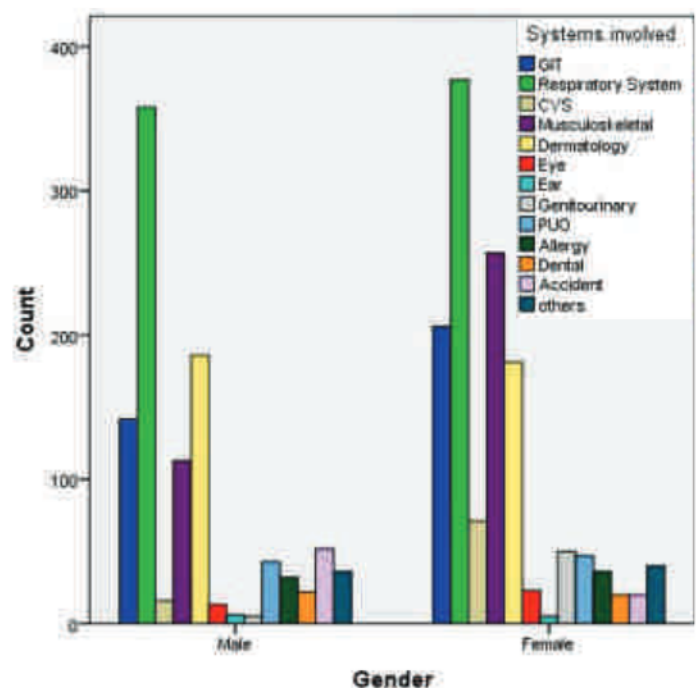
Figure 4: *Gender-wise distribution of various organ systems involved*

By cross tabulating age with organ systems involved it was seen that respiratory and musculoskeletal symptoms were prevalent in 50 years and above age group as compared to other groups. A strong association was seen between age groups and organ systems involved with p- value of .000

Discussion

The 6 months disease pattern and distribution study highlighted the basic presenting symptoms, the systems involved as well as the distribution of various diseases among different genders and various age groups. The data collected from the basic health unit (BHU) describes the load of different diseases that actually presents at the first point of contact between patient and doctor. These studies are quite important because a quantification of presenting diseases and addressing them at this basic level can prove to be very useful in reducing patient load at the level of tertiary care and teaching hospitals.

A total of 2357 patients presented to BHU 14/1AL Renala Khurd between 1st January 2017 and 30th June 2017. The population of Renala Khurd is 72724 [9] which means that 4.4% of population presented to this health care facility in 6 months period. One explanation for this small number can be the presence of other Basic Health Units and Rural Health Centers in the area. The other explanation to this can be the presence of quacks in the area or patients presenting directly to the tertiary care hospitals in Okara, Faisalabad and Lahore. The patient turnover can also be affected by the literacy rate in the area. People usually neglect minor as well as major symptoms instead of seeking medical advice.

Out of 2357 patients 43.4 % were males and 56.6 % were females which goes with the commonly observed trend of various diseases like Common cold [14] musculoskeletal pains [15] and dermatological diseases [16]. One explanation to this can be the lower threshold of symptom tolerance in females than in males. The other explanation to this can be the unavailability of males in the area during the working hours of the basic health unit due to their presence at their job places. Thirdly females mostly present at the health care facilities due to symptoms related to pregnancy and childbirth and in their childbearing ages females are more prone to develop various medical problems [17] like cholecystitis.

44.8% of patients who presented to the basic health unit were between 15-49 years of age. Most of them were females but males were present in large number too. Considering the fact that women in their childbearing age have multiple visits to health care facilities so their large number is justified. Young males on the other hand have also presented to the facility and this can be attributed to the communicable diseases because of contact at workplaces or educational institutions. Elderly patients usually make the highest number of visits due to multiple diseases and ailments [18] but in our study the elderly patients having age above 50 years were second in the category. The reason behind this may be the fact that the elderly patients due to their decreased mobility usually present less at the health care facilities and complaints of elderly are usually neglected and taken casually [19]. Children having age less than 1 year were least in this category. The fact that problems related to infants are taken quite seriously [20] and due to the lesser availability of specialists in rural area most of these patients are usually taken to tertiary care hospitals where Pediatrics ward and specialists are available.

The maximum patients presenting to the health care facility came with the symptoms involving the respiratory system. This finding goes with the trend worldwide [21]. Due to overcrowding, lack of proper hygiene, sanitation and awareness the respiratory diseases are creating a huge problem resulting in maximum patient load. Most of these people are elderly people, which is due to their increased susceptibility to diseases and the immune-compromised state mostly due to type 2 diabetes and increasing age [22]. The collected data belongs to mostly winter weather, which also justifies the number of patients presenting with respiratory symptoms. The dermatological cases can be attributed to the insect bites and allergic reactions that due to the overcrowded environment and the pollen season are very common.

Genitourinary diseases were more common in females as compared to males as is seen in the rest of the world [23]. The reason behind this is the small length of urethra in females and its close proximity to the anus [23]. When studying genitourinary system with age groups most of genitourinary cases were between 15-40 years. This indeed can be explained on the basis of the fact that this is the age where the sex drive is maximum and also that unprotected sex is usually practices due to illiteracy, lack of awareness and lack

of proper facilities. Males in this age group were less than females. Most of the population of Renala khurd is muslim [5] and circumcised males are at a lesser risk of acquiring STDs than uncircumcised males [24].

A large number of accident and trauma cases were seen and males outnumbered females by almost 3:1. This mostly is due to the fact that males travel as they work outside whereas females usually are housewives. Another reason is that motorcycles and cycles are most frequently used means of transportation and these are quite accident-prone vehicles. Less trauma cases were seen in females as compared to a study held in India [25] in which females were mostly affected in trauma and accident cases most of which were domestic accidents.

Author's Contribution

Taimoor Akram Khan: Collected the data and wrote the article.
Anam Farooq and Amna Farooq: Corrected and entered the data.
Muhammad Nasir: Analysed teh data and reviewed the manuscript.
Gohar Khan: Formatted and reviewed the manuscript.
Ali Akram Khan: Finalized the paper.

Conclusions

Being the first point of contact between the patients and doctor, the basic health units receive a vast variety of patients presenting with different symptoms. The priority of health care system should be to emphasize on disease prevention as well as treatment at the Primary Health Care facilities so that the population should benefit regardless of gender, age, socioeconomic status and the severity of illness.

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