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Prevalence of Ankle and Foot Conditions in a Multi-Ethnic Community Presenting to Primary Health Care Centres in Qatar

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Abstract **Original Research Article**

Objective: To estimate the prevalence and characteristics of consultations due to ankle and foot conditions in Qatar. ***Methods:*** Data was obtained retrospectively from the computerized records in health centres of Primary Health Care Corporation from January to December 2019.The data was stratified by age, sex, nationality and different subgroups of causes. ***Results:*** There were a total 792043 consultations in phcc during the period of January to December 2019. The consultations were mostly non traumatic at 15525 (58%). Of these 26862 (3.3%) were related to ankles and foot problems, the most commonly documented code was foot pain 5960 (22.1%) followed by foot injury 3325 (12.3%). Males (54%) accounted for slightly more consultations than females 46%. Being outside normal weight range accounted for almost 40% of consultations (Obese 34.7% and underweight 25.8%). The prevalence of ankle of foot problems was 186 per 10000 registered patients. ***Conclusion:*** The burden of ankle and/or foot encounters in primary care is not insubstantial and includes all ages, gender and nationality. The authors recommend further training of practitioners in proper coding.

Keywords: Foot Conditions Prevalence Community Presenting.

INTRODUCTION

Studies in western populations have shown that ankle and foot problems are highly prevalent in the community. Population based studies have indicated that between 18 and 63% of people report pain, aching or stiffness in their feet [1-3] and a significant number of have nail problems or corns and calluses [1, 4]. Factors associated with foot problems include increased age [1, 5, 6], female gender [1, 7, 8], obesity [8-10] and chronic diseases like Osteoarthritis and Diabetes [8-10].

Due to the differences in set up of health care services between different countries, the first contact for patients with ankle and foot problems can be a primary care physician or an allied health care professional. While there has been some data on consultation patterns for foot surgery [11, 12], there is relatively little known about the characteristics of ankle foot problems presenting to family medicine physicians. The only detailed assessments have been conducted in the Netherlands and UK [13-15]. Primary care consultation for foot problems is an important area to explore for two main reasons. First, in Qatar, one of the modes of consulting is via family medicine physicians based in health centres, attend many private clinics across the country or attend the emergency department. Analysis of health centre consultations can provide valuable insights into the patterns of foot disorders in the community. Secondly, there is considerable variation in the diagnosis and management by physicians and training of physicians in managing these conditions may not be adequate [16]. Understanding the prevalence of foot and ankle problems in primary care may assist in targeting the educational activities to the common conditions encountered in primary care and potentially improve the clinical outcomes.

METHOD

This is a retrospective data analysis which included patients who were diagnosed with having any ankle or foot related problems as per the medical e-records. The study period was from January 2019 to December 2019. The patients included in the study had presented to one of the health centres in the state of Qatar. The demographics and clinical diagnosis were obtained from the medical e-records after patient details were anonymized and released by the Primary health Care Corporation (PHCC) research department. An

approval was obtained from the ethic committee of PHCC (reference number …….).

All cases with any diagnosis related to ankle, foot or toes were searched for by the medical records team. The data was presented in an excel sheet which was password protected and only available to the investigators. Due to the large number of diagnoses that were used to record ankle and foot problems, we categorized them. The first category was to divide the diagnosis into eight ankle, foot or toes related, the second was whether it was traumatic or non-traumatic. The diagnoses were designated as traumatic if the condition was considered to be the result of acute trauma or injury. If the diagnosis was not specified as trauma like ankle/foot pain was considered to be non-traumatic.

As multiple read codes were used, similar diagnoses were grouped together. The data was then tabulated to include nationality, gender, BMI, if imaging was undertaken, sick leave days, monthly attendance and the health centre patients attended.

RESULTS

During the period of January 2019 to December 2019 there were 26862 consultations with 423 different read codes due to ankle and foot problems out of a total 792043 patients attending across 28 Health Centres in PHCC. Ankle and foot problems thus accounted for 3.3 % of the total consultations during 2019. There were 1,445,691 patients registered with PHCC across different health centres during the year 2019. The prevalence of ankle and foot problems was calculated as 186 per 10000 registered patients.

The categorization of consultations is shown in Table 1. Most of the consultations [15525(58%)] were due to non-traumatic conditions. The region most affected by non-traumatic conditions was foot [8789 (32.7%)], followed by ankle [3587(12.3%)]. The trauma related consultations accounted for 42% consultations. For trauma - related consultations again foot was the most common region involved [4939 (18.3%)] followed by ankle [3498(13%)].

Males (54%) accounted for slightly more consultations than females (46%) [Figure 1]. The most common age group presenting with ankle and foot problem was 5-17 years (44.9%), followed by age group 45-64 (27.86%), then age group 18-44 (19.21) and the least was over 65 years (4.15%) [Figure2].

The consultation rates were steady throughout the year but there was some reduction in numbers during summer holidays in Qatar. The most likely reason is many families travel during the holiday period. The health centres are divided into 3 regions and most consultations were observed in the health centres based in the western region [Figure 4].

BMI was recorded in 16347 patients. Being obese or underweight formed the majority of the cases 60.5%. Patients with BMI over 30 formed the greatest number of patients at 34.74%, followed by similar percentage of patients in patients with normal BMI (24%) and underweight with BMI <18 (25%). Surprisingly patients with BMI 25-30 formed the least number of patients (14.8%) [Figure 3].

An x-ray was done in 10221 (44.3%) patients. A total of 60315(22.45% of ankle and foot consultations) days of sick leave was issued during this period for ankle and foot related problems. Most of the consultations were in health centres based in Western region of Qatar. This is most likely due to centres with large populations registered there.

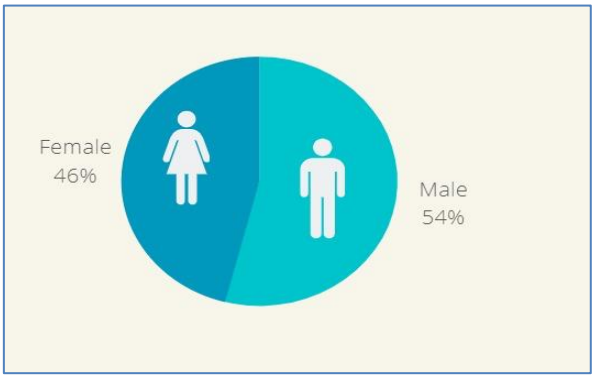

Fig-1: Total number of ankle and foot consultations as per gender

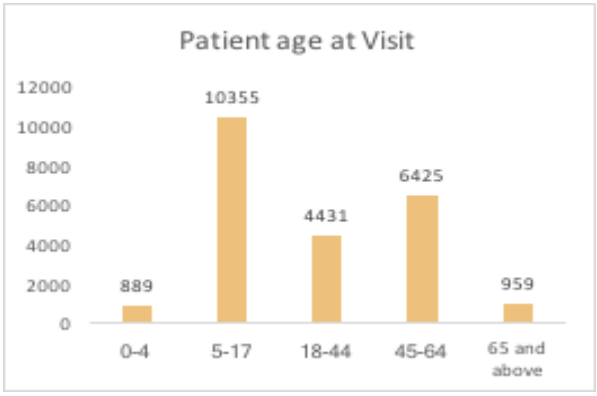

Fig-2: Total number of ankle and foot consultations as per age

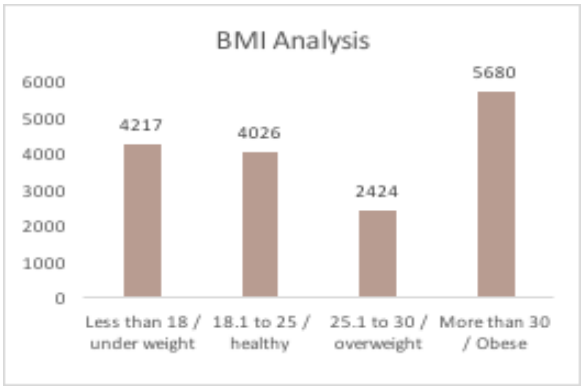

Fig-3: Total number of ankle and foot consultations as per BMI. Total number of patients 16347 (with BMI)

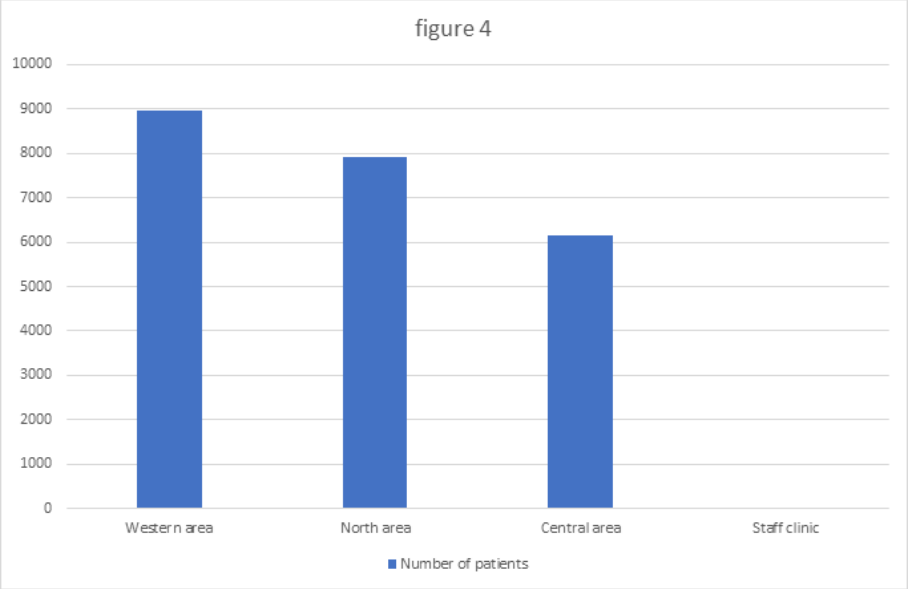

Fig-4(a): Total number of ankle and foot consultations as per area

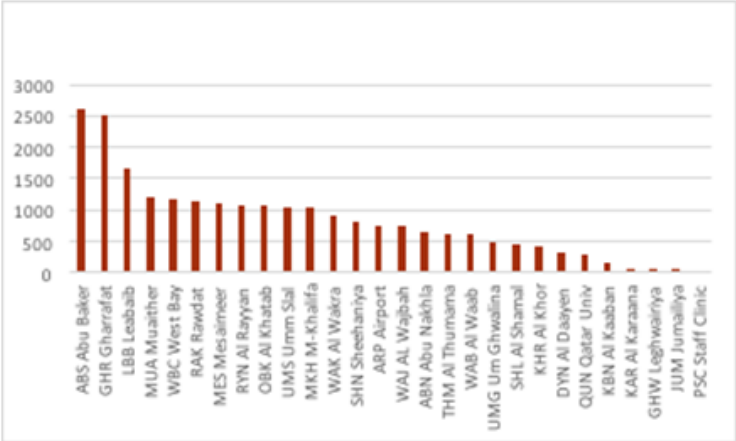

Fig-4(b): Total number of ankle and foot consultations as per health centre

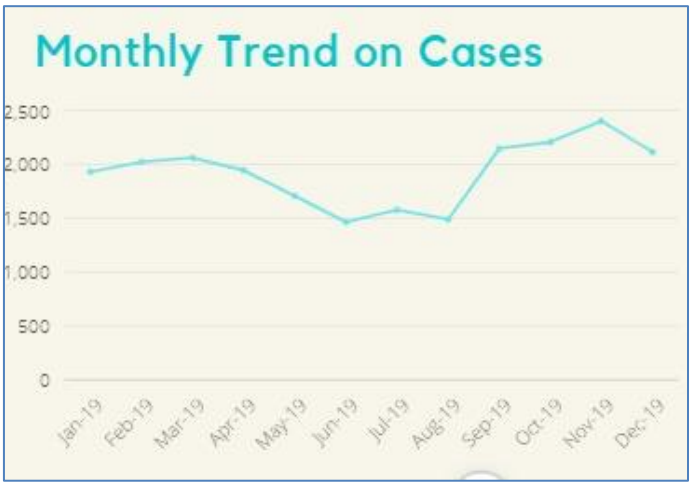

Fig-5: Monthly trends of consultations

Table-1: Classification of all ankle and foot problems according to the trauma status and the region affected

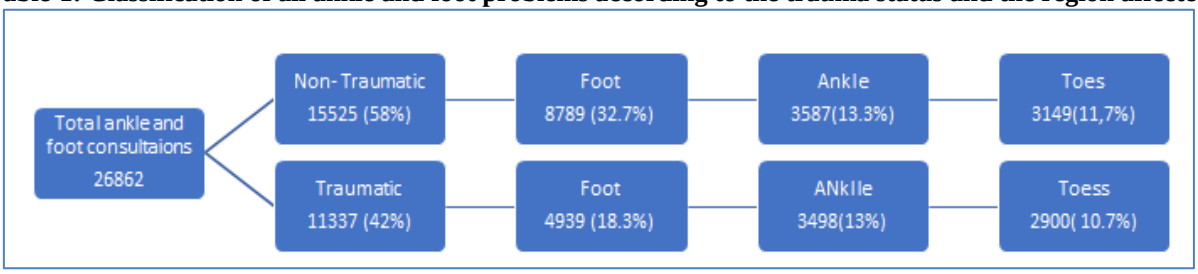

Table-2: Frequency of the 10 most commonly coded ankle and foot problems

Frequency of the 10 most commonly coded ankle and foot problems	
Code description	Frequencies %
Foot pain	22.18%
Foot Injury	12.3%
Ankle pain	11.2%
Ankle sprain	7.4%
Toe Injury	7.6%
Ingrown Toenail	6.25%
Ankle Injury	5.1 %
Toe pain	4.6%
Diabetes related/ Ulcer	3.45%

% of the total ankle and foot presentations n=26862

DISCUSSION

The objective of the study was to explore the prevalence and characteristics of ankle and foot problems presenting in primary care settings in a multi-ethnic population of Qatar. The study indicated that about 3.3 % consultations in PHCC were due to problems related to ankle and foot. The prevalence of ankle and foot problems was 186 per 10000 registered patients. These figures are much lower than suggested in other similar studies, who gave prevalence of 24% for foot problem and 15%-foot ankle problem [17]. This could be due to differences in the health care set up and the way physicians read code ankle and foot problems and many patients may not be consulting their physician due to these problems. One of the other reasons is many patients tend to attend the emergency department if any history of trauma or acute pain. Many employers provide private health insurance; many patients may be attending private clinics.

In our study we found very few patients over the age of 65. This could be due to the demographic of the state of Qatar. The population is more working-class expatriates. This also reflects in more male patients than females. We also notice that almost 30% patients were above the BMI of 25, so either obese or overweight.

There were 434 read codes used to document ankle and foot problems. The prevalence rates of ankle and foot problems ranged from 249 to 290 per 10,000 populations in some of the studies [13]. Comparison of this figure with prevalence rates of foot problems from population-based studies is problematic due to differences in population characteristics and considerable variation in the case definitions used.

We expected more trauma related encounters due to the high number of encounters in young population [figure2]. Many consultations were categorized by using non-specific diagnoses like ‘foot pain', ‘ankle pain’ and ‘toe pain’. One of the reasons for this can be that these problems require further investigations before a definitive diagnosis is reached and a specific diagnosis may not be available at the time of presentation. The other reason for coding symptom wise rather than actual diagnosis could be lack of proficiency on part of physicians at diagnosing ankle and foot problems. In a study in the Netherlands, it was concluded that GPs competence to diagnose common foot problems varies and more vocational or post graduate training was advisable [16]. The training can also reduce the number of x-rays as 44% of patients presenting with ankle and foot problems had imaging done.

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