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MORBIDITY PATTERN OF PATIENTS ATTENDING PRIMARY HEALTH CARE FACILITIES IN RURAL PUNJAB: A STUDY OF FIROZEPUR DISTRICT

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Abstract
Knowledge about distribution and burden of diseases in a community is essential for planning of public health services. In the absence of information on morbidity pattern through community based surveys, facility based data provide a good alternative. The aim of this study was to analyze the morbidity pattern of patients attending the PHC/CHCs. A record based descriptive and analytical study was carried out in all PHCs/CHCs located in Firozepur district, Punjab. Information on age, gender, residence, new or old case and principal diagnosis were extracted from the patient registers for the years 2013 to 2015. Descriptive analysis was carried out. About 6.13 lakh patients visited the sampled PHCs/CHCs for seeking treatment during 2013-15. The commonly diagnosed diseases at these centres were belonged to diseases groups such as (i) digestive system; (ii) respiratory system; (iii) eyes and odnexa; (iv) musculo-skelton system & connective tissues; (v) skin and sub-cutaneous tissues. Further, the study pointed out that both among the inpatients and outpatients, more than one-half of patients were females who visited PHCs/CHCs for treatment. There is urgent need to have a state-specific health policy for health care planning and future requirements in the state.

Keywords: Morbidity pattern, rural health, primary care, patients, health policy.

Introduction

Primary health care is an essential part of India's public health care system based upon a practically utility, scientifically sound and socially acceptable approach; and moreover, present day technology has made it universally accessible to individuals and families in the community through their full participation and at very low cost that the community/country can afford to maintain at every stage of development in the spirit of self-reliance and self-determination (Gupta, et al., 2014[1]). It is an integral part of India's public health system and overall socio-economic development of the community (Annapoorani, 2007 [2]). Being holistic in nature, its basic aims is to provide preventive, curative, promotional and rehabilitative health care services to the rural people living in India (Banerjee, et al., 2004 [3]; Gill, et al., 2010 [4]). In fact, need for primary health care in India was envisioned by the British regime (GOI, 1948 [5]). This committee strongly recommended establishing primary health centres (PHCs) and to give universal health coverage to all people through a comprehensive state owned health care system. Alma-Atta declaration 1978 [6] and the WHO 2008 reinforced the concept of primary health care as a vital strategy more than ever (WHO, 2008 [7]).

Significance Of Study

India has already developed a unique primary health care structure. In fact, need for establishing PHCs gained significance when India adopted a strategy of planned economic development of her economy and social sectors. In subsequent years, two new types of health centres, namely, sub centres (SCs) in

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the 1970s as the lowest level of hierarchy and community health centres (CHCs) in the 1980s at the higher level of hierarchy, were added to provide comprehensive and quality health care to the rural people. It shows that in India's rural areas, the primary health care services are delivered through three types of health institutions comprising a SC for a population of 3000-5000, a PHC for 20000-30000 population and a CHC as referral centre for the four/five PHCs together. The staffing pattern and infrastructural facilities needed at each PHC and CHC are also quantifies for providing a wide range of curative, preventive and promotional cares (GOI, 2001 [8]).

Further, a typical PHC caters health care needs of a population of 30,000 in plain areas with 4-6 inpatient beds. It provides the first contact with the needy people residing in the rural area to a qualified doctor working in the public sector. It acts as a referral unit for 5-6 sub-centres. Similarly, each CHC - four doctor-specialists in the areas of medicine, surgery, paediatrics and gynaecology and with 30 inpatient beds - is required to act primarily as a better referral centre (for the neighbouring PHCs, usually 4-5 in numbers) for the patients requiring specialized health care services. Thus, main objective of having a referral centre – PHC/CHC - is two-fold: (i) to make modern and quality health care services accessible to the rural people at doorsteps; and (ii) to prevent overcrowding of patients in the tehsil/district hospitals.

The significance of primary health care, in the numerous contexts, has been examined in India or elsewhere. A review of research studies done earlier (Singh, 1991 [9]; Kumar, 2011 [10]; Kaur, 2017 [11], Bala and Kumar, 2016 [12]) showed a low utilization of PHCs/CHCs by the patients when they were fell ill. But, none of these studies pointed out what type of patients are visited the PHC/CHC and for what disease/s they are seeking health care, etc. Since a wide spectrum of patients are attending the PHC/CHC, a thorough knowledge of the patients and magnitude of their health problems is essential for understanding the burden of various diseases at the grass-root level. Further, reporting of morbidity pattern of a particular health facility strengthens the data available for planning health care services efficiently. In addition, the knowledge of the burden of diseases will also help in providing effective and timely treatment to the community. It will also help public health planners in providing an enhanced quality of primary care to the community. The significance of study, therefore, to examine morbidity pattern of patients seeking health care provided by the PHC/CHC working in rural areas of Firozepur District of India Punjab.

Data Base and Methodology

The study has chosen all 17 PHCs and 4 CHCs located in rural Firozepur district of Punjab for study purposes. Presently, this district is one of the backward and border districts of Punjab (Singh, B. et al., 2004 [13]). Of its 10.03 lakh population, 6.92 lakh people (67.63 percent) were living in rural areas. Rural sex ratio was 907 females per 1000 males. 48.08 percent of rural population belonged to the SCs. In 2011, rural work participation rate was just 30.01 percent. Amongst the total rural workers, 70.37 percent workers were employed in the agricultural either as the cultivators or agricultural labourers. Cropping intensity was 193 percent in 2014-15 and wheat-paddy crops covered more than 91 percent of gross cropped area of district. Its rural literacy was just 65.06 percent (71.27 percent among males and 58.28 percent among females) in 2011.

The study is based primarily upon the unpublished data collected from the office records of all 17 PHCs and 4 CHCs located in Firozepur district of Punjab during August 2016 to October 2016 for the last three years, namely, 2013, 2014 and 2015 were taken into account. In fact, each PHC/CHC maintains a record of all the patients (outdoor patients, indoor patients and deaths) visited these

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health centres. Patient details, diagnosis of diseases and treatment provided by physicians were documented in the morbidity registers. Further, information such as age, sex, residence, new or old patient and principal diagnosis were also extracted from the datasheets/registers available at each PHC/CHC level. Diseases were categorized as per International Classification of Diseases (ICD) adopted by the Department of Health and Family Welfare, Punjab. Further, patents less than or up to the age of 14 years of age were classified as children and proportions/ratios were worked out wherever necessary. An analytical and descriptive approach was applied to examine the morbidity pattern among the patients seeking health care from the PHCs/CHCs located in rural Firozepur district of Punjab (India).

Number of Patients Attended PHCs/CHCs and Their Age Distribution

An assessment of the patients attending all PHCs/CHCs (Table 1.1) showed that about 6.13 lakh patients visited these sampled health institutions for seeking treatment during 2013-15. Over the time period, total number of patients showed a rising trend of patients attending these centres. For instance, overall 1.81 lakh patients visited these PHCs/CHCs for treatment. Their number rose to 232,404 patients in 2014 and declined to 199,891 patients in 2015. Further, 93.61 percent of these patients (169,157 patients) during the year 2013 were seeking treatment as the outdoor patients and just 6.39 percent patients were treated as indoor patients. Similarly, in 2014, 95.52 percent of total patients (221,992 patients) in 2014 were sought treatment as the outdoor patients and just 4.48 percent patients were getting treatment as indoor patients. In 2015, 94.75 percent of patients (1.89 lakh patients) visited these centres for getting treatment were as outdoor patients and 5.25 percent patients for getting treatment as indoor patients. Further, number of deaths occurred in PHCs/CHCs were 51 deaths in 2013, but rose to 137 deaths in 2014 and declined to 97 deaths in 2015. Overall, number of indoor patients formed 5.59 percent of outdoor patients during the last three years and deaths formed 0.88 percent of indoor patients during these years.

Table 1: Distribution of All Patients Seeking Treatment from PHCs/CHCs in Rural Firozepur District, 2013-15

Year	Number of Patients Attended PHCs/CHCs and Deaths				
	Outdoor	Indoor	Total	Deaths	Deaths as %age of
2013	169,157	11,551	180,708	51	0.44
	93.61	6.39	100.00	17.89	
2014	221,992	10,412	232,404	137	1.32
	95.52	4.48	100.00	48.07	
2015	189,405	10,486	199,891	97	0.93
	94.75	5.25	100.00	34.04	
Total	580,554	32,449	613,003	285	0.88
	94.71	5.29	100.00	100.00	

Source: Office Records of the concerned PHC/CHC during Field Survey.

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Table 2: Percentage Distribution of Outdoor and Indoor Patients Treated in Rural Firozepur by Gender, 2013-2015

Year	Percentage Distribution Patients Treated by Type of Patients and Gender						
	Adult >14 years		Child ≤14 Years		Total		G. Total
	Male	Female	Male	Female	Male	Female	
Out-Patients							
2013	38.70	51.02	5.60	4.68	44.30	55.70	100.00
2014	37.47	44.81	8.57	9.15	46.04	53.95	100.00
2015	36.38	38.08	11.84	13.70	48.22	51.78	100.00
Total	37.52	44.64	8.67	9.18	46.19	53.81	100.00
In-Patients							
2013	30.47	53.40	8.48	7.66	38.95	61.05	100.00
2014	30.22	54.66	7.76	7.36	37.98	62.02	100.00
2015	29.47	55.30	7.81	7.42	37.28	62.72	100.00
Total	30.05	54.45	8.02	7.48	38.07	61.93	100.00

Source: Office Records of the concerned PHC/CHC during Field Survey.

In the case indoor patients in 2013, 38.95 percent patients were males and 61.05 percent were females. The adult male patients cornered 30.47 percent, adult female patients 53.40 percent, male child patients 8.48 percent and female child patients 7.66 percent. Similarly, amongst indoor patients in 2014, 37.98 percent patients were males and 62.02 percent were females. The adult male patients constituted 30.22 percent, adult female patients 54.66 percent, male child patients 7.76 percent and female child patients 7.36 percent in 2014. In 2015, male patients constituted 37.28 percent and females 62.72 percent. In 2015, the proportion of adult male patients was 29.27 percent, adult female patients 55.30 percent, male child patients 7.81 percent and female child patients 7.42 percent. The data analysis showed that among indoor patients, number of female patients were more than that of male patients compared to although the females constituted a low share in total rural population of Firozepur district.

Morbidity Pattern Of Patients Attending PHCs/CHCs

The main objective this study is to bring out a brief account of morbidity pattern among the patients attending these PHCs/CHCs. In fact, the knowledge about morbidity profile will help in providing effective and timely treatment to the community (Rajeshwari, 1996 [14] and Raman et al., 2009 [15]). It will also help the public health planners in providing an enhanced and high quality health care service to the community. For building a correct picture of morbidity pattern, the study, instead of analysis each year's proportions, worked out average of number of patients suffering from different types of diseases during 2013-2015. For instance, total number of patients attended

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these PHCs/CHCs for seeking treatment during 2013-2015 was added and then the proportion of these patients (613,003 patients) were worked out by broad category of diseases (Table 3). Among the total number of patients seeking treatment, the most common diseases were of the digestive system (101,230 patients; 16.51

Table 3: Distribution of Total Patients (Outdoor and Indoor) Seeking Care from PHCs/CHCs Located in Rural Firozepur District by Broader Category of Diseases

Sr.	Name of the diseases	2013	2014	2015	Total
1	Infective and Parasitic Disease	7954	14189	13403	35546
	%	4.40	6.11	6.71	5.80
2	Neoplasm	103	575	658	1336
	%	0.06	0.25	0.33	0.22
3	Blood and Blood forming Disease	6666	10077	7842	24585
	%	3.69	4.34	3.92	4.01
4	Nutritional and Metabolic Disease	5093	9448	8812	23353
	%	2.82	4.07	4.41	3.81
5	Mental Disorders	3313	7186	5425	15924
	%	1.83	3.09	2.71	2.60
6	Nervous System	386	678	621	1685
	%	0.21	0.29	0.31	0.27
7	Eye and Odnexa	18465	25196	24280	67941
	%	10.22	10.84	12.15	11.08
8	Ear and Mastoid Process	2501	3763	3730	9994
	%	1.38	1.62	1.87	1.63
9	Circulatory System	9603	14650	14690	38943
	%	5.31	6.30	7.35	6.35
10	Respiratory System	16195	28099	25238	69532
	%	8.96	12.09	12.63	11.34
11	Digestive System	30445	39590	31195	101,230
	%	16.85	17.03	15.61	16.51
12	Skin and Sub-cutaneous Tissue	10384	17105	11916	39405
	%	5.75	7.36	5.96	6.43
13	Musculo-skelton System and Connective Tissue	28417	5865	5108	39390

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	%	15.73	2.52	2.56	6.43
14	Genito Urinary System	2462	3821	2855	9138
	%	1.36	1.64	1.43	1.49
15	Pregnancy, Prenatal Period, Child Birth and	7608	9573	9648	26829
	%	4.21	4.12	4.83	4.38
16	Congenital Malformation Deformation	8338	11730	12222	32290
	%	4.61	5.05	6.11	5.27
17	Abnormal Laboratory and Clinical finding	3026	3010	904	6940
	%	1.67	1.30	0.45	1.13
18	Injury Poisoning and Consequents of External	5420	6502	4730	16652
	%	3.00	2.80	2.37	2.72
19	External Cause of Morbidity and Mortality	5716	5184	5008	15908
	%	3.16	2.23	2.51	2.60
20	Others (unspecified)	8613	16163	11606	36382
	%	4.77	6.95	5.81	5.94
Total		180708	232404	199891	613003
%		100.00	100.00	100.00	100.00

Source: Office Records of the concerned PHC/CHC during Field Survey.

percent), followed by diseases of respiratory system (69,532 patients; 11.34 percent), disease of eyes and odnexa (67,941 patients; 11.08 percent), diseases of musculo-skelton system & connective tissues (39,390 patients; 6.43 percent), diseases of skin and sub-cutaneous tissues (39405 patients; 6.43 percent), diseases of circulatory system (38,546 patients; 6.35 percent), infective and parasitic diseases (35546 patients; 5.80 percent), congenital malformation/deformation and chromosomal abnormalities (32,290 patients; 5.27 percent), diseases related to pregnancy, pre-natal period, child birth and puerperium (26,829 patients; 4.38 percent), blood and blood forming diseases (24,585 patients; 4.01 percent), nutritional and metabolic diseases (23,353 patients; 3.81 percent), man-made illness such as injury poisoning and consequents of external injuries (16652 patients; 2.72 percent), mental disorders (15,924 patients; 2.60 percent), external causes of morbidity and mortality (15,908 patients; 2.60 percent), diseases of ears and mastoid (9,994 patients; 1.63 percent), diseases of genito-urinary system (9,138 patients; 1.49 percent), disease related to abnormal laboratory and clinical findings (69,40 patients; 1.13 percent). Besides, a few disease-group cornered less than one percent share of total patients such as the diseases of nervous system (1685 patients; 0.27 percent) and neoplasm (1336 patients; 0.22 percent). Interestingly, unspecified diseases under the category of others cornered 5.94 percent share (36382 patients).

Further, a large number of research studies on pattern of diseases made it clear that along with the wide spread presence of communicable and mal-nutrition related

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diseases, burden of non-communicable diseases such as diabetes, hypertension, obesity, heart attacks, cancers, joint pains, etc has increased in India, more so in Punjab (Singh, 2015). An attempt has been made to analyse the number of patients suffering from such non-communicable diseases who were seeking treatment from these PHCs/CHCs. The data in Table 4 revealed that in 2013, 33,700 non-communicable disease patients were found to seeking treatment by visiting these centres; of them, 58.72 percent were males and 41.28 percent females. Their number decreased to 27,455 patients in 2014; of them 57.96 percent were males and 42.04 percent females. In 2015, just 7329 non-communicable disease patients visited these sampled PHCs/CHCs; of them 67.31 percent patients were males and 32.69 percent females. Overall, total non-communicable disease patients over three years (2013-2015) were 68484 patients; of which 59.34 percent were males and 40.66 percent females. It highlighted that more men were suffering from non-combinable diseases in rural areas of Firozepur district.

Table 4: Number of Non-Communicable Disease Patients Seeking Treatment from PHCs/CHCs, Located in Rural Firozepur District by Gender, 2013-2015

Year	Number of Non-Communicable Disease Patients		
	Male	Female	Total
2013	19790	13910	33700
%	58.72	41.28	100.00
2014	15912	11543	27455
%	57.96	42.04	100.00
2015*	4933	2396	7329
%	67.31	32.69	100.00
Total for 2013-15	40635	27849	68484
%	59.34	40.66	100.00

*Few months' data were available for 2015.
Source: Office Records of the concerned PHC/CHC during Field Survey.

Regarding the broad pattern non-communicable diseases among the patients seeking care from given PHCs/CHCs, an assessment of the data in Table 5 showed that during the last three years (2013-15), cardio-vascular diseases emerged as the most important category of non-communicable diseases as such diseases cornered 37.63 percent (25,770 patients) share of total non-communicable disease patients (68484 patients), followed by patients of lung related diseases (15,977 patients; 23.33 percent), patients of diabetes mellitus (9872 patients; 14.42 percent), patients of accidental injuries (9062 patients; 13.23 percent), patients of psychiatric disorders (4277 patients; 6.25 percent), patients of neurological disorders (2799 patients; 4.09 percent), other diseases (607 patients; 0.78 percent), patients of malignant & benign cancer (120 patients; 0.18 percent) and snake bites (0.11 percent).

Comparing across the males and females, cardio-vascular diseases were most significant non-communicable diseases as this disease cornered again a highest proportion of patients (34.03 percent in case of males and 42.88 percent in case of females), followed by the lungs diseases (20.87 percent in the case of

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males and 26.91 percent in the case of females) and diabetes mellitus (12.93 percent in the case of males and 16.58 percent in the case of females. However, more males were found to suffer from accidents as 84.36 percent of male patients compared to just 15.64 percent female patients were victims of accidental injuries. On the other hand, female patients were dominated male patients in the case cancer disease as more than one-half of cancer suffering patients (53.33 percent) were females compared to 46.67 percent males. The data revealed that the diseases of heart, lungs and diabetes were the most prominent non-communicable diseases that had emerged in the rural areas of Firozepur district.

Table 5: Number of Non-Communicable Disease Patients Seeking Treatment from PHCs/CHCs, Located in Rural Firozepur District by Type of Disease and Gender, 2013-2015

Type of Disease		2013-15*			Percent Share by Gender		
		M	F	T	M	F	T
1	Cardio Vascular Diseases	13828	11942	25770	53.66	43.34	100.00
	%	34.03	42.88	37.63			
2	Lungs Disease	8482	7495	15977	53.09	46.91	100.00
	%	20.87	26.91	23.33			
3	Diabetes Mellitus	5255	4617	9872	53.23	46.77	100.00
	%	12.93	16.58	14.42			
4	Accidental Injuries	7645	1417	9062	84.36	15.64	100.00
	%	18.81	5.09	13.23			
5	Psychiatric Disorder	2897	1380	4277	67.73	32.27	100.00
	%	7.13	4.96	6.25			
6	Neurological Disorders	1989	810	2799	71.06	28.94	100.00
	%	4.89	2.91	4.09			
7	Cancer (Malignant & Benign)	56	64	120	46.67	53.33	100.00
	%	0.14	0.23	0.18			
8	Others	483	124	607	79.57	20.43	100.00
	%	1.19	0.45	0.89			
	Total	40635	27849	68484	59.34	40.66	100.00
	%	100.00	100.00	100.00			

*Few months' data were available for 2015.
Source: Office Records of the concerned PHC/CHC during Field Survey.

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Main Conclusions And Public Policy Suggestions

The main conclusions of the study, in brief, highlighted that a large number of patients were found to be getting/seeking treatment from the PHCs/CHCs located in the rural Firozepur district. The commonly diagnosed diseases at these centres were belonged to eight major diseases groups such as (i) digestive system; (ii) respiratory system; (iii) eyes and odnexa; (iv) musculo-skelton system & connective tissues; (v) skin and sub-cutaneous tissues; (vi) circulatory system; (vii) infective and parasitic diseases; and (viii) congenital malformation/deformation and chromosomal abnormalities. Together, these groups of diseases counted more than 70 percent of total patients during 2013-15. Further, although the neoplasm (cancer) and man-made diseases (injuries, poisoning and external causes) had very small number of patients as compared to other diseases, yet impacts of such diseases in ruining family finances and lives are more serious in nature as compared to treatment seeking of other types of diseases.

Further, the study pointed out that both among the inpatients and outpatients, more than one-half of patients were females who visited PHCs/CHCs for treatment. Further, in the case of outdoor patients, adult male patients constituted 37.52 percent, adult female patients 44.64 percent, male children 8.67 percent and female children 9.18 percent. In the case indoor patients, during the same period (2013-15), adult male patients cornered 30.05 percent, adult female patients 54.45 percent, male children 8.02 percent and female children 7.48 percent. Regarding non-communicable diseases, cardio-vascular diseases emerged as major disease, followed by lung diseases, diabetes mellitus, accidental injuries, psychiatric disorders, and neurological disorders. Surging of these diseases is a major concern of future health care strategy.

The study found changing pattern of disease in rural areas where surging NCDs and man-made diseases along with re-emergence of communicable and infectious diseases become more importance. These diseases, in the absence of adequate primary health care, are putting an additional financial burden on the poor people. Adequate measures must be taken to raise the quality of health infrastructure facilities in rural areas of Firozepur district. Moreover, there is need to bring a reasonable efficiency in the working of the PHCs/CHCs. The state must take steps for raising the awareness level of people related to the prevention of diseases than cure. There is urgent need to have a state-specific health policy for health care planning and future requirements in the state.

A health care policy, therefore, should take a holistic view of the state's health care problems, identify the necessities and priorities, set-up objectives and ensure optimal utilization of the allocated resources, given the capability and constraints of the health care system. Last but not the least, rising costs of treatment, in both the public and private sector, warrant a viable health insurance policy. There is a dire need to enhance public investments in health sector and health investment planning must be biased towards the under-privileged people and areas.

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