Study of Self-Reported Morbidity Profile among the Rural Tribal Population in a District of Western India

Jay R. Patwa[1], Rakesh M. Patel[2], Shashwat S. Nagar[3], Niraj B. Pandit[4]

[1]Assistant Professor, Community Medicine Department, Dr. N. D. Desai Faculty of Medical Science & Research, Nadiad, Gujarat, India

[2]Taluka Health Officer, Borsad, Department of Health and Family Welfare, Government of Gujarat, Gujarat, India

[3]Associate Professor, Community Medicine Department, Parul Institute of Medical Sciences and Research, Waghodia, Gujarat, India

[4]Professor and Head, Community Medicine Department, SBKS Medical Institute and Research Center, Sumandeep Vidyapeeth, Waghodia, Gujarat, India

Correspondence : Dr. Rakesh M. Patel, Email: drrakeshcmo@gmail.com

Abstract :

Introduction: India has a dual burden of both communicable as well as non-communicable disease. The morbidity pattern of a population is considered as a proxy measure to understand the country's health status. **Objectives:** To study the demographic profile of villages & compare it with national level. To assess the common morbidity pattern, its age-wise distribution and proportion of multi-morbidity in the community. **Methods:** The present cross-sectional study was a part of routine Rural Health Training Centre (RHTC) work. For present study, 5 out of 15 villages under the Primary Health Centre (PHC) Bahadarpur were included with purposive sampling. House to house visit were done. Data were collected by trained intern doctors posted at RHTC from November 2014 to January 2015. All villagers who were living in those villages for more than a year and fitting in the definition of a family were included in the study. **Results:** Oro-dental diseases, ophthalmic diseases, musculoskeletal diseases & non-communicable diseases were top in prevalence list. Prevalence of multi-morbidity for non-communicable diseases was 14.68%. In children below the age of five years most common morbidity was acute respiratory infection. Among children aged between 5 years to 14 years the most common morbidity was ophthalmic disease while among 15-60 years of age group & in geriatric population oro-dental disease was most common morbidity. **Conclusion:** The present study gave prevalence rates for various diseases. Acute respiratory infections are still major problem among children. Multimorbidity is a new phenomenon which was observed in rural tribal villages. Such community-based prevalence of different diseases will help to understand the changing disease pattern in the community.

Key Words : Disease Burden, Disease Pattern, Epidemiologic Transition, Morbidity, Non-Communicable Diseases (NCDs)

Introduction :

According to the World Health Organization's Global Burden of Disease (GBD) study in 2017, infectious disease and maternal, neonatal & nutritional factors accounted for more than 10.3 million deaths worldwide (18.6%) out of a total 55.9 million. Non-communicable diseases, on the other hand, caused 41 million or 73.4% of deaths worldwide.[1] Given such mortality evolution, most developing countries are exhibiting a drastic change in their disease pattern with an increase in non-communicable deaths.[2] Modernization, improved sanitation and better housing conditions in developing countries have been compelling in controlling infectious diseases.[3] Omran in 1971 termed these changes a 'transition of epidemiology', whereby infectious diseases are being replaced by chronic diseases over time due to expanded public health care and sanitation.[4]

Although the transition of the disease pattern from acute communicable to chronic non-communicable disease is widely visible on the world map, there is substantial variation in the levels and patterns of mortality crosswise over nations and locales. These distinctions reflect disparities in the accessibility of fundamental necessities like food, safe

drinking water, sanitation, housing and health care. They also reflect differences in risk factors, behavioural choices, demographic characteristics and other societal contexts that influence the survival of individuals.[5,6]

India has a dual burden of both communicable as well as non-communicable disease. Although CVDs and other non-communicable diseases are on the ascent, communicable diseases continue to be a noteworthy public health problem in India. Study of health transitions in India reveals a decrease in general mortality at a national level as well as state-level over the last three decades; however, the present status of bleakness in India is yet to be evaluated. India had 33% of the total Disability-Adjusted Life Year (DALY) from Infectious Disease and Maternal, Neonatal & Nutritional factors, 55% from Non-Communicable Diseases (NCDs), and 12% from injuries in 2016.[7] Life expectancy at birth for males and females will increase by 10 years and 11 years respectively from 2006– 2051 as per "Morbidity and Health Care" schedule of NSSO 60th round survey and the proportion of elderly are expected to increase at a rapid pace than younger population because of slow or decline growth rate.[8] These demographic changes will influence the morbidity pattern & proportion in the country.

The morbidity pattern of a population is considered as a proxy measure to understand their health status. Measures of self-reported morbidity are directly linked to the health status of any given population. Recently research has been done to assess the pattern of morbidity across the major states in India using nationally representative large-scale survey data, but there is limited research on morbidity pattern for a rural tribal area of India.[1,7] keeping this view in mind, the present study was conducted to assess the demographic profile, common morbidity pattern& its age-wise distribution and proportion of multi morbidity in rural tribal population of Gujarat.

Methods:

The present cross-sectional study was a part of a routine RHTC (Rural Health Training Centre) activity of the Department of Community Medicine. As a part of this activity, 5 out of 15 villages under the Primary Health Centre (PHC) Bahadarpur were included in the study by purposive sampling. Following five villages of Tribal rural district Chhota Udepur of Gujarat: Bahadarpur, Golagamdi with vasahat, Kherva, Rughnathpur and Nani Akhtyarpur were included in the study. The geographical area map was collected from Gram panchayat and all families living in this panchayat area were the study participants. Details of family and family members were obtained. The study was started after getting permission of the institutional ethics committee. House to house visit was done and data were collected by trained intern doctors posted at RHTC from November 2014 to January 2015. Informed consent was taken prior to data collection. Interns gathered information in pilot pre-tested proforma. The inclusion criteria for the study were all villagers living in a village for more than a year and fitting in the definition of family. The visitors were not included in study participants. The information was collected from either head of the family or key person of the family.

The key information regarding socio-demographic and morbidity variables were collected in a structured and coded questionnaire. Morbidity data were collected from the respondent by asking system wise disease to avoid recall bias & then positive history was cross-verified by history, investigation and clinical records wherever it was available. Cataract, glaucoma, refractive error, blindness etc. diseases were covered under ophthalmic diseases. Back pain, carpal tunnel syndrome, epicondylitis, tendinitis etc. diseases were covered under musculoskeletal diseases. Same way system wise diseases were merged into the major group diseases. Those households, which were closed on 3 consecutive visits each 1 week apart, were excluded from the present study considering permanent migration. The investigators did back check for validation of data. Collected data were compiled in Microsoft office Excel 2007 format. Data were processed using Epi info statistical software 7.2. Descriptive and analytical statistical methods were used for the data analysis.

Results:

In the present study,1324 families with 6157 total population were studied. Out of which 23.8% were below 14 years, 64% were between 15 to 59 years & 12.2% were above the age of 60 years. Sex ratio was 896 female / 1000 male, while child sex ratio was 1016 female / 1000 male. Their socio-economic status as class I, II, III, IV & V was 11.5%, 16.2%, 22.8%, 29% & 20.3% respectively. (Table 1)

Figure 1 shows the population pyramid of the survey population. The highest number of population was in 15-19 years of age group followed by 10-14 years of age group.

Prevalence of some commonly self-reported diseases were hypertension (4.58%), Diabetes mellitus (1.72%), Cardiovascular diseases (1.61%), Stroke (0.42%), cancer (0.15%), gastrointestinal disease (3.25%), ophthalmic disease (7.63%), Oro-dental disease (16.86%), Muscular skeletal disease (5.67%). (Table 2)

However, if only the adult population was taken for consideration, the age-standardized prevalence of hypertension was 6.81%, diabetes was 2.56%, cardiovascular disease was 2.39% & stroke was 0.62%.

Oro-dental diseases had the highest proportion of all morbidity among the community (30.63%) followed by Non-communicable diseases (17.47%), Ocular morbidity (13.87%), Musculoskeletal disorders (10.3%), Gastrointestinal disease (5.9%), Central nervous system disorder (4.95%). (Figure 2)

Coexistence of two non-communicable diseases morbidity was found in 12.83% people while three or more morbidity was found in 1.85% of people. So, the prevalence of non-communicable multimorbidity (at least 2 morbidities) was 14.68%. (Table 3)

Figure 3 shows that in children below the age of five years, most common morbidity was Acute respiratory infection (46.67%) followed by Gastrointestinal tract disease (31.85%). Among children aged between 5 years to 14 years, most common morbidity was Ophthalmic disease (56.83%) followed by Acute respiratory infection (19.56%). Among 15-60 years of age group, Oro-dental diseases were the most common morbidity (42.22%) followed by non-communicable diseases (15.76%). In the geriatric population with age above 60 years, Oro-dental diseases were the most common morbidity (32.78%) followed by non-communicable diseases (22.99%).

Discussion:

In the present study, sex ratio was 896/1000 which is near to Gujarat sex ratio of 919. However, it was observed that child sex ratio (0-6 years) 1016/1000 which is female favourable and in contrast to Gujarat child sex ratio of 890.[9] The probable reason behind female favourable sex ratio is tribal rural population.

In the present study, the highest number of population was in 15-19 years age group followed by in 10-14 years & in 5-9 years age group. These findings are in contrast with national level where the highest population is in 10-14 years, followed by in 5-9 years & in 15-19 years age group. The present study finding shows that the population pyramid is in the transition phase of changing from a typical developing country to a developed country.[10]

In the present study, oro-dental diseases were most common among the community followed by Non-communicable diseases, Ocular morbidity, Musculoskeletal disorders, Gastrointestinal diseases and Central nervous system disorders respectively. Present study results were, in contrast, to study done in urban Tripura by Datta A et al where most common morbidity was Acute respiratory infection (ARI) followed by Musculoskeletal disease, anaemia & non-communicable disease respectively.[11] Present study results were also, in contrast, to study done in rural Tamilnadu by Gopalakrishnan S. et al where most common morbidity was Respiratory diseases followed by musculoskeletal and digestive tract disease.[12] The higher proportion of oro-dental morbidity in the present study might be because of a lack of awareness about dental problems &poor dental hygiene. Also, the higher proportion of non-communicable diseases & lesser acute respiratory tract infection diseases in the present study shows signs of epidemic transition which currently whole nation is facing with a dual burden of communicable & non-communicable diseases.

Table 1: Socio demographic variables of the study population (n= 6157)

Demography	Characteristic	Frequency (%)	National average*
Age (Years)	0-14	1465 (23.80%)	29.5%
	15-59	3941 (64.00%)	62.5%
	>60	751 (12.20%)	8%
Sex	Male	3246 (52.72 %)	51.5%
	Female	2911 (47.28 %)	48.5%
	Sex Ratio	896/1000	896/1000#
	Child Sex Ratio (0-6 years)	1016/1000	919/1000

*As per census 2011 data[13]
#As per SRS report 2017 [14]

Figure 1: Age pyramid of population(n = 6157)

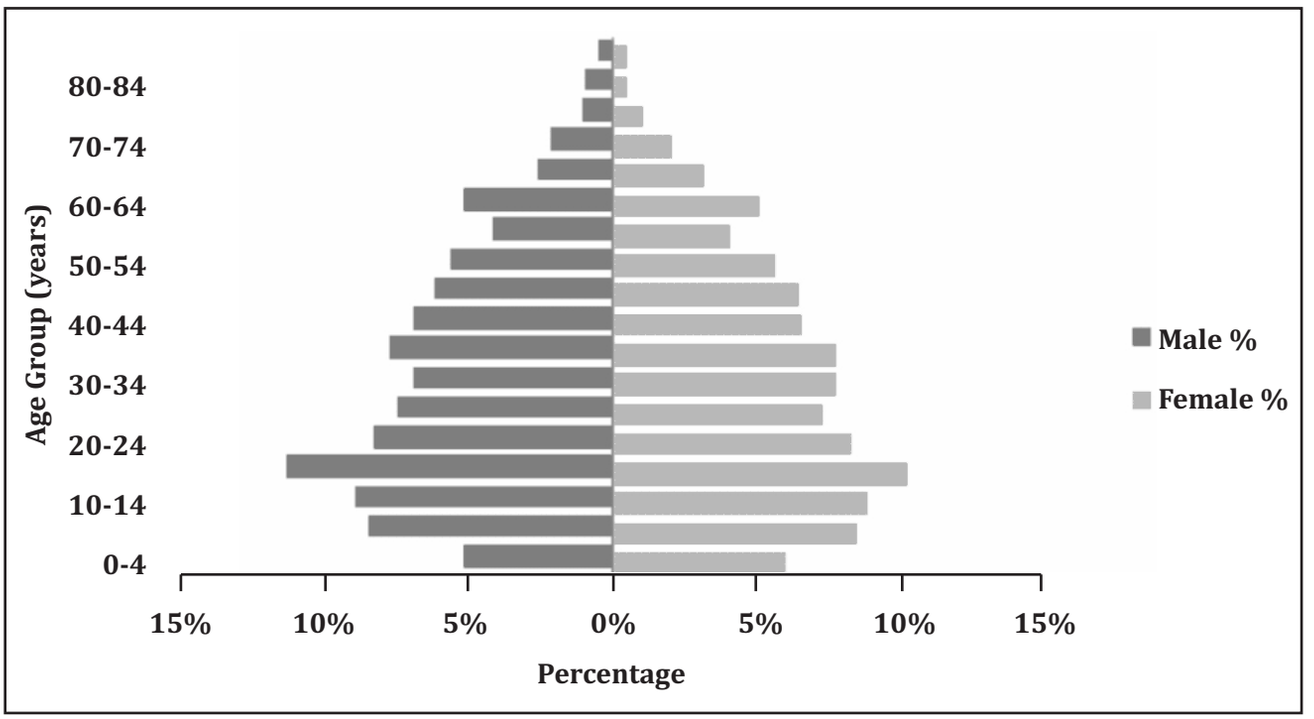
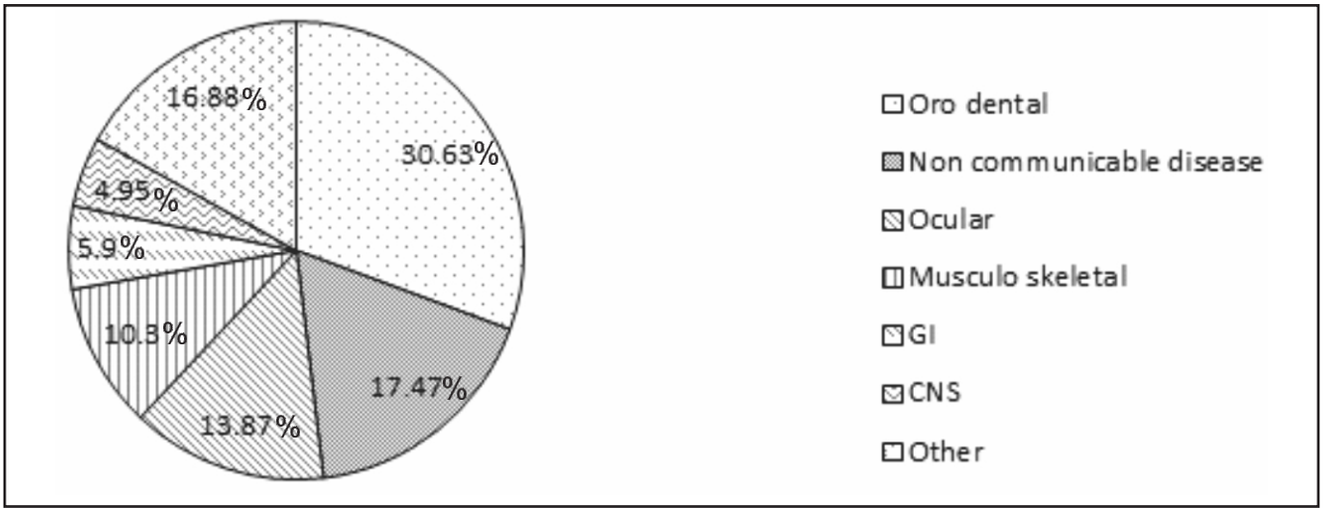


Table 2: Prevalence of common self- reported diseases (n = 6157)

Sr. No.	Disease	Number (n)	Prevalence (%)
1.	Hypertension	282	4.58
2.	Diabetes Mellitus	106	1.72
3.	Cardio vascular Disease	99	1.61
4.	Stroke	26	0.42
5.	Cancer	9	0.15
6.	Gastro Intestinal Disease	200	3.25
7.	Central Nervous Disease	134	2.18
8.	Ophthalmic Disease	470	7.63
9.	Respiratory Disease	125	2.03
10.	Oral dental disease	1038	16.86
11.	Muscular skeletal Disease	349	5.67
12.	Accident	30	0.49

Figure 2: Proportion of self- reported Disease burden in the community(n = 2868)

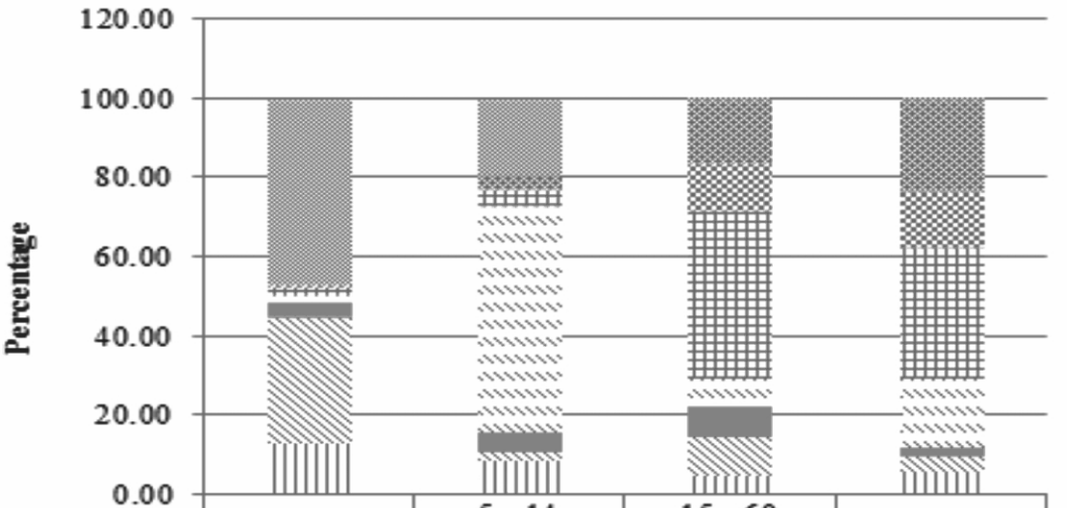


GI – Gastro Intestinal, CNS – Central Nervous system

Table 3: Distribution of study population based on Multi morbidity of Non-Communicable disease per person (n = 592)

Sr. No.	Number of coexisting Non Communicable disease Morbidity per person	Frequency (%)
1.	Two	76 (12.83 %)
2.	Three or More	11 (1.85 %)

Figure 3: Age group wise distribution of common self- reported morbidities(n = 2868)



	< 5 years	5 - 14 years	15 - 60 years	> 60 years
RI	46.67	19.56	0.41	0.25
NCD	0.00	2.95	15.76	22.99
musculo	0.74	0.37	11.91	14.30
oro dental	2.22	4.06	42.22	32.78
Ophthal	1.48	56.83	7.17	17.31
Skin	3.70	4.80	7.37	1.92
GIT	31.85	2.21	9.61	4.10
Other	13.33	9.23	5.55	6.35

RI = Respiratory Infection
NCD = Non Communicable Disease
Musculo = Musculoskeletal Disease
Orodental = Orodental Disease
Ophthal = Ophthalmic Disease
GIT = Gastro Intestinal Tract Disease

In the present study, the prevalence of hypertension was 4.58% & Diabetes mellitus was 1.72%. However, the age-standardized prevalence of hypertension was 6.81% &diabetes was 2.56% for the adult population. The Present findings were similar to the study done by A Bhansali et al who found the self-reported prevalence of hypertension at 5.5%.[15]Although various meta-analysis & systematic review predicted prevalence of hypertension in India to be 25% (ranged from 13.9 to 46.3%) in urban and 10% (ranged from 4.5 to 58.8%,) in rural areas,[16,17] which shows that still there might be many hidden undiagnosed cases of hypertension in the community. In the present study high prevalence for oro-dental diseases (16.86%), ophthalmic diseases (7.63%) & musculoskeletal diseases (5.67%) was found. The Present findings were matching with a study done by Gopalakrishnan S. et al.[12] (Table: 2)

In the present study, the coexistence of two non-communicable diseases was found in 12.83% people while three or more was found in 1.85% of people. Multi morbidity (At least 2 morbidities) was found in 14.68% population. Present study findings were in contrast to the study done in rural Odisha by Banjare P. et al. who found multi morbidity prevalence as high as 56.8%.[18]These difference might be because the current study was community-based and due to different geographical area of both the studies.

In the present study, most common morbidity in children below 5 years, children aged between 5 years to 14 years, 15-60 years of age group and age above 60 years were Acute respiratory infection, Ophthalmic disease, oro-dental disease and oro-dental disease respectively. It indicates that under 5 children were more vulnerable to acute respiratory

infection while the refractory error like ophthalmic diseases were more common in children between 5 to 14 years. Oro-dental diseases were more common in adult as well as the geriatric population followed by Non-communicable diseases. Present findings were in contrast to the findings of Gopalakrishnan S. et al. study in which most common morbidities were respiratory, respiratory, musculoskeletal and musculoskeletal in below 5, 5-14, 15-60 and above 60 years of age group respectively.[12]

Limitation:

As the current study objective is to cover all the morbidities, only pre-existing morbidity information was collected with a self-reported method. There was no diagnosis done by a team of an investigator.

Conclusion:

The present study shows the health status of the community by doing community diagnosis of disease load. Respiratory and gastrointestinal problems are still prevalent among children while non-communicable diseases are increasing among the adult population. Such community-based prevalence of different diseases helps to understand the changing disease pattern in the community. This study can set a background for establishing and strengthening outreach services like medical camps and the provision of specialist services to the catchment population.

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Declaration:

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Conflict of interests: Nil

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