Does Poverty Influence Non-Communicable Diseases among Elderly Women in Slums in Mumbai?

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Abstract : This paper examines non-communicable diseases related to elderly women and the utilization of health services available to them in this area. This study uses primary data, collected using cluster sampling of sample size 326 elderly of which 277 were elderly women suffering with Hypertension, Diabetes, Alcohol Abuse, Mental Illness, T.B., Tobacco Use Senile Cataract, Hearing loss, Musculoskeletal Disorder, Respiratory disorder from Rafi Nagar slum area in Mumbai. The findings using Chi-Square test reveals that there is a strong association between the age groups of the aged women and the Hypertension, Asthma, Sick (last 2-weeks), Emptiness, Feeling Guilty respectively. Even with education level groups of elderly women, it showed strong association between Asthma, Ignored Injury, T.B., Skin lesion, Joint pain, Tobacco Use, Musculoskeletal Disorder, Gastrointestinal system, Emptiness, Loss of Interest, Hard time to remember respectively. Besides there was evidence of unimaginable low level of treatment seeking behavior which goes without adequate care taken amongst the poorest stratum of these aged women. The need for care services is suggested at younger age particularly for low-income category in such areas.

Keywords: Non-Communicable diseases, Aging, Treatment, Urban.

1. INTRODUCTION

Chronic non-communicable diseases (NCDs) contributed to 35 of the 58 million deaths (60.3%) in the world in 2005. (Strong et al., 2005) 80 per cent of these deaths occurred in low and middle income countries. Based on available trends, by 2020 NCDs are predicted to account for 73% of deaths and 60% of disease burden. In India, NCDs were responsible for 53 per cent of deaths and 44 per cent of disability adjusted life years lost. (Reddy et al., 2005).

Approximately 1 billion people live in slums which are estimated to double in next 20 years (Unger , 2007), with growth rate of 2% per year (Ooi, 2007, Sclar, 2005). 47% of the urban population of countries in South East Asia live in slums (Ooi, 2007, Sclar, 2005), and constitutes 60% of the world's slum dwellers (Ooi, 2007, Sclar, 2005). What is intriguing is that, despite such enhanced statistics of slum population globally, there is no knowledge regarding respiratory health amongst slum dwellers in context to asthma and COPD.

An estimated, 65 million people in India suffer from respiratory diseases of the non-communicable type, out of which asthma and COPD alone account for over 42 million cases, and this number is projected to grow by over 20% by the year 2030 (Nongkynrih, 2004). During last few decades there has been an unprecedented growth in slum populations in the Indian subcontinent. Pune is the 7th largest developing cities of India situated in the mid-western region. It has a population of over 4 million with estimated 32% (over 1 million) residing in slums. In last 20 years the slum population in the city has increased by 176%, and similar growths have occurred in other growing cities of India (Sen, 2003).

Hypertension is an important public health problem. Worldwide, more than one billion adults have hypertension and this is predicted to increase to 1.56 billion by 2025.(Kearney, 2005). Those with hypertension have higher risk of coronary artery disease, heart failure, and stroke. Hypertension accounts for 57% of all deaths from stroke and 24% of all deaths from coronary heart disease in India.(Gupta, 2004).

Injuries are an important and often forgotten cause of mortality and disability in South Asia where over 30% of global unintentional injury deaths occur (Golshan, 2013). After road traffic accidents, falls, drowning and burns are the most common cause of death from injury (Golshan, 2013). Most burns in South Asia occur in the home, with women over 14 and boys under 12 at most risk (v, 2014).

Since life expectancy of men is 66.9 years and that of women 69.9 years.1 Consequently, many health problems, both physical and mental, associated with older age have also risen sharply. Depression is one such non-communicable disease. Globally, more than 300 million people are prey to this mental ailment, women more than men.(WHO, 2017). In India, with its unique socio-cultural situation and the stigma associated with mental disorders, limited access to treatment, put the afflicted more at risk. Adding economic dependence to this, gender disparity, the health status and quality of life of older women is more at risk, now more than

ever before.(The Times of India, 2017). In addition, depression may manifest in a chronic, undulating or mild form and health professionals may not be equipped to deal with it. The dual loads of communicable and non-communicable diseases have burdened the health systems. Health systems, in general, are not geared to tackle this dual onslaught.

Knowledge that older people are vulnerable to develop tuberculosis is rarely considered in developing country settings. According to 2010 Global Burden of Disease estimates, the majority of tuberculosis-related deaths occurred among people older than 50; most in those aged 65 and above. Older people also contribute a large proportion of Disability-Adjusted Life Years (DALYs); 51% of tuberculosis DALYs occurred in patients aged 50 years and older in East Asia.(Joel Negin, 2015)

There is only one woman for two men diagnosed with tuberculosis in the country, say figures collected by Revised National Tuberculosis Control Programme. This is the case in most parts of the world, with more men contracting the disease than women, except in places such as Afghanistan and parts of Pakistan. So, about 4.7 lakh women, of the total 14.1 lakh cases, suffer from TB in India. (Menaka Rao, 2015).

Tobacco use is responsible for almost 10,000 deaths each day and approximately 4.9 million deaths per year worldwide. Cigarette smoking has been linked to several diseases such as respiratory and ischemic heart diseases, stroke, lung, upper respiratory and digestive tract cancers, and peptic ulcer (WHO, 2003).

According to the World Health Organization (2013), at least 347million people worldwide suffer from diabetes i.e. 2.8% of the population. The number of people with diabetes in India, currently around 40.9 million is expected to rise to 69.9 million by 2025 unless urgent preventive steps are taken. During the year 2004, there were an estimated 37.7 million cases of diabetes in country, of these 21.4 million in urban areas and 16.3 million in rural areas. The estimated total mortality due to diabetes was 1.09 lac; 62.5 thousand in urban areas and 46.6 thousand in rural areas. Same year 2.2 million DALYs were lost due to the disease.(Kedar at. Al, 2017)

The study (Arvind, 2012) considered all persons aged 60 years and above, residing in an urban slum of Delhi, were included in this cross-sectional community- based study. Data were collected on sociodemographic variables. The participants' awareness and treatment of diabetes was recorded. Their fasting blood sugar was estimated using an automated glucometer. Diabetes was diagnosed if fasting blood glucose was ≥126 mg/dL, or if the participant was taking treatment for diabetes. Impaired fasting blood glucose was diagnosed if fasting blood glucose was 110–125 mg/dL.Among the 474 participants studied, the prevalence of diabetes was estimated to be 18.8% (95% CI 15.3–21.5). It decreased with increasing age, and was higher among women. The prevalence of impaired fasting blood glucose was 19.8% (95% CI 16.3–23.7). It was higher among women. One-third of the diabetic participants were aware of their condition; two-thirds of these were on treatment and three-fourths of those on treatment had controlled fasting blood sugar level. The awareness, treatment and control were better among women.

With changing demographic profile India has older women than men as life expectancy for women is 67.57 as against 65.46 for men. Both social and health needs of the older women are unique and distinctive as they are vulnerable. A cross-sectional study carried out (Anju, 2014) in the urban slum of Raichur, north Karnataka, India. A total of 136 elderly women (50 years old and above) were interviewed using a pre-designed, pre-tested schedule. Findings were described in terms of proportions and percentages. Results: A major fraction of the population was in the age group of 56-60 years old; A majority (58.8%) of the respondents were Hindus. joint family system was seen to be the most common (75%) among the population Majority of them (82.3%) were illiterate and tobacco chewers 60 (83.3%). the most common health problems were Arthritis, Upper respiratory tract infections, Dental caries & dental stains, Reduced visual acuity (refractive error), Hypertension, diabetes, Cataract, bronchial asthma. Conclusions: There is a need to recognize the special health needs of the women beyond the reproductive age. Information on common health problems in this age and health facilities including where those services are available should be provided. Health workers at primary level should be equipped with knowledge and skills in order to address the problems of this special group

A population-based cross-sectional study was conducted (Banerjee, 2016)in the slums of Kolkata in collaboration with Kolkata Municipality Corporation. Door-to-door survey was conducted by trained healthcare workers using a structured questionnaire. Age, sex, religion, housing conditions (house/hut), average monthly household income, education status, current use of tobacco, history of hypertension, and whether on antihypertensive treatment were recorded. Blood pressure (BP) was recorded as per standard guidelines. Hypertension was diagnosed by JNC-VII criteria. A total of 10,175 adults aged ≥20 years were enrolled in the study. Study showed overall prevalence of hypertension was 42%. Hypertension was newly detected in 19% of the population. Fifty-four percent of the hypertensive subjects were aware of their hypertension status, 38% were on antihypertensive treatment, and 12% had their BP controlled to target level. Subgroup analysis showed that the prevalence of hypertension was higher in men, above 60 years age, in the minority community, in those with a higher household income, and among the tobacco users.

Oral sub mucous fibrosis is a chronic insidious disease of the oral mucosa characterized by loss of mucosal elasticity and excessive fibrosis. It is always associated with juxta epithelial inflammation and progressive hyalinization of lamina propria. It was described by Schwartz in 1952 as a fibrosing condition of the mouth in 5 Indian women from Kenya for which he coined the term"Atrophica idiopathica tropica mucosae oris". The etiology of oral sub mucous fibrosis is multifactorial. The etiological factors include local

irritants such as spice consumption, areca nut chewing, tobacco smoking and chewing. Systemic factors include anemia (iron deficiency), vitamin deficiencies (B-complex and folate) together with the malnourished state (protein deficiency), genetic predisposition to the disease and autoimmunity. Diverse agents including lime, tobacco, catechu, cloves, saffaron, and leaf of piper betel leaves may form a part of formulation. A study was undertaken to evaluate the effect of tobacco related practices on oral health of tribes in Central India. The use of smokeless tobacco, gutkha & associated products is on the rise amongst the younger generation making oral precancer & cancer a public health concern. In central India 80% of head and neck cancers are found in the oral cavity and oropharynx (Binu, 2017).

Alcoholism is the dependency of an individual to alcohol and is considered a disease by the World Health Organization. Constant, uncontrolled and progressive use of alcoholic drinks can seriously compromise the proper functioning of the organism, leading to disturbances of the mind, physical health, relationships with others and social and economic behaviors (**Bruno et al., 2016**)

The absolute numbers of individuals with substance user disorders among the geriatric population is thus increasing with time. This would call to attention the need to apprise health care professionals about the various substances used by the geriatric population. The presence of substance use disorders in the elderly would need to be addressed in a different manner as compared to young adult and middle-aged individuals. Substance use is found to be associated with altered brain structure and function, leading to mood, consciousness, and perceptual abnormalities. This may lead to impairment in the physical as well as psychological well-being of a person, more so in an elderly. Elderly substance users are more likely to have comorbid medical illnesses, which might complicate the presentation of both the substance use disorder and the medical illness. The types of substances of abuse encountered in the elderly tend to differ from those of other age groups. The major sources of concern among the elderly are use of alcohol, prescription benzodiazepine, and opioids. Elderly substance users have different needs with regard to treatment services, and accessibility issues are among their major concerns (Sarkar, 2015).

Slum dwellers have poor socio-environmental conditions and less access to medical care, which make them susceptible to illnesses. Studies on urban slums have primarily focused on non-communicable diseases.

Recently, a few studies have been conducted mainly to explore the prevalence of noncommunicable diseases among elderly women in slums (Kevin W. Ongeti et al., 2013; P Kowal,et al., 2012), but negligible attempts were made to examine the determinants of such diseases among elderly women in slums. Hence it is necessary to impart knowledge about the prevalence of non-communicable diseases and to understand the root cause of generating such diseases among such poor aged women in slums. Besides, elderly women in the urban slums are unaware of the existing health facilities and even though these facilities are available, it has not been adequately utilized. Thus, keeping in view of the above research work, an attempt is made, to evolve a suitable strategy for knowing

i) the prevalence and influence of non-communicable diseases among elderly women in the slums and
ii) utilization of existing health facilities available in the slums in Mumbai.

2. MATERIALS AND METHODS

The present study was conducted during December 2016-January 2017 in Mumbai of Maharashtra state of India. The state of Maharashtra situated in the western part of India, came in to existence on 1st May, 1960 with the merging of territories of Bombay state, Madhya Pradesh and Andhra Pradesh. It has a land area of 307713 sq. km. which is about one-tenth of the total land area of the country. As per the 2001 Census of India, the total population of the state is 96.8 million, which is 9.4 percent of the total population of India.

In terms of population size, it is the second largest state of India, Next to Uttar Pradesh. The population density of Maharashtra has increases from 257 persons per sq. km. in 1991 to 314 persons per sq. km. in 2001. The state has six divisions and forty six percent of the state population is concentrated in two divisions Konkan and Pune which forms the most, industrialized part of the state including Mumbai. According to the 2001 Census, the population density within the state ranges from 208 persons per sq. km. in Nagpur division to 807 persons per sq. km. in Konkan division (Director of Census operations, Maharashtra, 2001a). According to the estimates of the Planning Commission, more than one-third of the state population (37 percent) is below the poverty line. Maharashtra has been a destination for a large influx of migrants from other parts of India. Net migration has contributed 19 percent to its population growth during the last decade. The sex ratio for Maharashtra is 922 females per 1000 males.

2.1 PROFILE OF MUMBAI CITY

The city of Mumbai is originally a cluster of seven islands having an area of 603 sq. km. It has grown at a tremendous pace over the years. Between 1941 and 1961 the population grew 2.5 times and between 1961 and 1981 was of two times. Between 1981 and 2001 the population increased from 82 lacs to 120 lacs. Thus, the overall population density of Greater Mumbai works out to be 19000 persons per sq. km. whereas stated earlier Maharashtra's only 314. This high density of population coupled with dearth of housing has lead to the development of degrading slums.

Mumbai being the capital of Maharashtra and also the metropolitan city has many features to attract people, generate job opportunity and then people finds the solution to stay where ever possible as per their earning capacity. It has organized industrial sectors, high literacy rate among workers, well planned transportation facility, good drinking water facility, and underground sewage system, basic education provided by Municipal corporation schools and even private schools and free education to girls is also provided by Govt. of Maharashtra. Many Anganwadies located in slums are imparting education to slum children and also to adults so called 'adult education'. Therefore, on the large scale, the migration takes place from the most parts of India to Mumbai.

According to Census of India 2001, about 49 percent of population of Mumbai lives in slums. About 28 percent and 21 percent of total population is male and female respectively who lives in slums. These slums household people have low income. These people consist even recent migrants who do odd jobs and cannot afford to pay any rent nor can they leave the city for fear of losing whatever source of income they have. Such people have occupied a space where ever they could find a place even in the face of stringent laws of encroachment. These slums have no basic health facilities like safe drinking water, toilets etc., in fact they have open drainage. They also lack of providing good education at affordable prices which has led to ignorance about proper hygiene, strong impact of religion and culture, marriage at early age, fear of availing government facilities.

According to 2001, Census of India, the slum sex ratio of Mumbai is 929 and slum literacy rate is 83.13 whereas slum female literacy rate is 75.17 and slum male literacy rate is 89.08. This rate is above national level.

2.2 PROFILE OF THE STUDY AREA

The Rafi Nagar slum on plain area in Deonar, Mumbai is the study areas. The population of Rafi Nagar is 5,500. This area comes under M/East ward. The slum sex ratio of M/East is 785 and the female literacy rates of these areas are 67.49 compared to male literacy rates of 82.9. This ward spreads over 34.38 sq. km. and has density of 13,730 (1991 Census) population per sq. km. Deonar is at the third rank position as far as slum area population is concern. In Deonar out of 6.72 lacs of population, 5.22 lacs of people stay in slum area (population density – 19,546 per sq. km.), according to Census of India, 2001, Maharashtra population data with data on slum population in urban units.

The present study covers elderly women whose age is 60 and above staying in the slum area of Rafi Nagar, Deonar, Mumbai. This study is based on the non-communicable diseases contracted to the elderly women and the health seeking behavior of such elderly women in Rafi Nagar slum area in Mumbai.

2.3 PLACE AND TIME OF STUDY

The present study was carried out in a urban slum communities a slum on plain area i.e. Rafi Nagar, Deonar in 'M-east' ward of Brihan Mumbai Municipal Corporation. This area is situated near Govandi (west) railway station, a suburb in the eastern part of Mumbai. The data was collected during December 2016-January 2017.

2.4 SURVEY DESIGN AND SAMPLING PROCEDURE

Initially, one slum from plain area was selected at random. In this slum, elderly women whose age is 60 and above were interviewed. Before taking the interview, the consent of such women were taken. Following steps were used to design the survey.
The lists of slums were obtained using the 'Directory of Slums' published by Office of the additional collector (ENC), Mumbai & Mumbai Sub. Dist.(see ref.)
From this list, two different lists were made from plain area slums. One slum was selected at random from the plain area slum. Plain area slum was Rafi Nagar, Govandi (West) in Mumbai, Maharashtra, India. The population of this slum was 5,500.

The map of the slum locality, (Rafi Nagar) was obtained from Urban Health Center / Sub-Center of the study area. Using cluster sampling method aged people having the age 60 and above of women were interviewed. The house where elderly women was not found, or refused to give interview, such houses were dropped. But such number was negligible. The interviews of the elderly women were conducted by the investigators with the help of structured interview schedule in the study area.

These investigators were given full training about the subject matter. Before collecting the data, the pilot survey was conducted in the study area. After getting responses from the respondents, some amendments were made in the schedule and then such schedule was used for collecting data. The feedback was also given to the entire field staff (Investigators) before taking main survey.

The process of data collection was continued till the required sample size was attained. In all, sample sizes of 326 elderly were selected from Rafi Nagar Slum area of which 274 were elderly male and 277 were elderly women. The population size of Rafi Nagar slum area was 5500. Thus sample selected represents population. Due to lack of financial support, larger sample size could not be collected.

Majority of the studies was focused on the non-communicable diseases associated with the elderly women. The present study on such diseases associated with the elderly women in the slum area is immense useful at this juncture. This information will assist

policy makers, heath sector and programme administrators in planning and implementing strategies for improving population, health and nutrition programmes.

These elderly women even have lack of awareness about the treatment seeking behavior and low standard of living, are the major limitations of this study. While conducting survey two elderly women have not responded to the investigators. However, due to time constraint and shortage of manpower the study was restricted to certain limit.

2.5 SURVEY INSTRUMENTS

The study instrument were included questions related to **Chronic non-infectious diseases** such as Hypertension, Diabetes, Asthma, Ignored injuries Mental illnesses (intentional or unintentional), **Chronic infectious diseases** such as Tuberculosis, latent TB infection, HIV infection, **Acute infectious disease with chronic outcomes** such as Skin lesion and super infection, Throat Infection, Joint pain (knee), Untreated bacterial pharyngitis; acute rheumatic fever. The questions on **Behavior and habits** such as Tobacco Use, Alcohol abuse, Illicit drug use, also were included. Besides the questions on morbid conditions among elderly people, whether were suffering from the illness such as Senile cataract, Hearing loss, Musculoskeletal disorders, Respiratory disorders, Gastrointestinal system, Sick (past two weeks), and any Other. At end the questions on health facilities and their utilization also were included.

3 METHOD OF ANALYSIS

Chi-Square test was used to know the association between elderly women age groups and non-communicable diseases and between education of elderly women and non-communicable diseases. For Chi-Square test, the elderly men who were residing in the slum area, i.e. Rafi Nagar for the past 20 years prior to survey were interviewed.

Logistic regression analysis was used to assess the effect of elderly health problems having hypertension on non-communicable diseases controlling for other variables included in the model. For the logistic regression analysis purpose, the elderly slum dwellers who were residing in the slum for the past 20 years prior to survey were interviewed.

3.1 CHRONIC NON-INFECTIOUS DISEASES

Cross tabulation was done according to the **age groups such as 60-64, 65-69, and 70+** of the **elderly women** related to **Hypertension and Asthama** in the Rafi Nagar slum area. Chi square test shows that there is significant difference (**.060* at 10% level of significance, .031** at 5% level of significance)** between the age groups of the aged women and the **Hypertension and Asthama** respectively they have, treating null hypothesis that there is no association between age of elderly women (>=60) and Hypertension respectively. (Table no. 1).

Table no. 1 : Cross tabulation of age groups of elderly women related to Hypertension and Asthama in Rafi Nagar slum area, Deonar, Mumbai.

HYPERTENSION	**AGE- Male**			**TOTAL**
	60-64	**65-69**	**70+**	
Yes	29	59	6	94
	26.6%	37.6%	54.5%	33.9%
No	80	98	5	183
	73.4%	62.4%	45.5%	66.1%
Total	109	157	11	277
	100.0%	100.0%	100.0%	100.0%
	Value	**df**	**Asymp. Sig. (2-sided)**	
Pearson Chi-Square	**5.626**	**2**	**.060***	**Significant**
ASTHAMA				
Yes	29	27	5	61
	26.6%	17.2%	45.5%	22.0%
No	80	130	6	216
	73.4%	82.8%	54.5%	78.0%
Total	109	157	11	277

	100.0%	100.0%	100.0%	100.0%
	Value	**df**	**Asymp. Sig. (2-sided)**	
Pearson Chi-Square	**6.979**	**2**	**.031****	**Significant**

3.2 BEHAVIOR AND HABITS

3.2.1 MORBID CONDITIONS AMONG ELDERLY WOMEN

Cross tabulation was done according to the **age groups such as 60-64, 65-69, and 70+** of the **elderly women** related to **Sick (Last two weeks)** in Rafi Nagar slum area. Chi square test shows that there is significant difference (**.070* at 10% level of significance)** between the age groups of the aged women and the **Sick (Last two weeks)** they have, treating null hypothesis that there is no association between age of elderly women (>=60) and **Sick (Last two weeks)**. (Table no. 2).

Table no. 2 : Cross tabulation of age groups of elderly women related to Sick (Last two weeks) in Rafi Nagar slum area, Deonar, Mumbai.

SICK (LAST 2-WEEKS)	**60-64**	**65-69**	**70+**	**TOTAL**
Yes	19	15	0	34
	17.4%	9.6	0%	12.3%
No	90	142	11	243
	82.6%	90.4%	100%	87.7%
Total	109	157	11	277
	100.0%	100.0%	100.0%	100.0%
	Value	**df**	**Asymp. Sig. (2-sided)**	
Pearson Chi-Square	**5.310**	**2**	**.070***	**Significant**

3.2.2 SIGN OF DEPRESSION

Cross tabulation was done according to the **age groups such as 60-64, 65-69, and 70+** of the **elderly women** related to **Signs of depression in the elderly** women such as feeling "emptiness and/or ongoing sadness" and "Feeling guilty, worthless, or hopeless" in the Rafi Nagar slum area. Chi square test shows that there is significant difference (**.097* at 10% level of significance, .012** at 5% level of significance)** between the age groups of the aged women and the **Signs of depression in the elderly** women such as feeling "emptiness and/or ongoing sadness" and "Feeling guilty, worthless, or hopeless" respectively they have, treating null hypothesis that there is no association between age of elderly women (>=60) and **Signs of depression in the elderly** women such as feeling "emptiness and/or ongoing sadness" and "Feeling guilty, worthless, or hopeless" (Table no. 3).

Table no. 3 : Cross tabulation of age groups of elderly women related to Signs of depression in the elderly women such as feeling "emptiness and/or ongoing sadness" and "Feeling guilty, worthless, or hopeless" in Rafi Nagar slum area, Deonar, Mumbai.

EMPTINESS	**60-64**	**65-69**	**70+**	**TOTAL**
Yes	17	12	2	31
	15.6%	7.6%	18.2%	11.2%
No	92	145	9	246
	84.4%	92.4%	81.8%	88.8%
Total	109	157	11	277
	100.0%	100.0%	100.0%	100.0%
	Value	**df**	**Asymp. Sig. (2-sided)**	
Pearson Chi-Square	**4.657**	**2**	**.097***	**Significant**
FEELING GUILTY				
Yes	2	0	1	3
	1.8%	0%	9.1%	1.1%
No	107	157	10	274
	98.2%	100%	90.9%	98.9%
Total	109	157	11	277

	100.0%	100.0%	100.0%	100.0%
	Value	**df**	**Asymp. Sig. (2-sided)**	
Pearson Chi-Square	**8.878**	**2**	**.012****	**Significant**

4. CHRONIC NON-INFECTIOUS DISEASES

Cross tabulation was done according to the educational level **such as "Illiterate", 1-7 and 8+** of the **elderly women** related to **Asthma** and **Ignored Injury** in the Rafi Nagar slum area. Chi square test shows that there is significant difference (**.070* at 10% level of significance, .016** at 5% level of significance)** respectively between the educational level of the aged women and **Asthma** and **Ignored Injury** they have, treating null hypothesis that there is no association between educational level of elderly women (>=60) and **Asthma** and **Ignored Injury** respectively. (Table no. 4).

Table no. 4 : Cross tabulation of educational groups of elderly females related to Asthma and **Ignored Injury in Rafi Nagar slum area, Deonar, Mumbai.**

ASTHMA	**Illiterate**	**1-7**	**8+**	**TOTAL**
Yes	39	20	2	61
	27.7%	16.3%	15.4%	22.0%
No	102	103	11	216
	72.3%	83.7%	84.6%	78.0%
Total	141	123	13	277
	100.0%	100.0%	100.0%	100.0%
	Value	**df**	**Asymp. Sig. (2-sided)**	
Pearson Chi-Square	**5.321**	**2**	**.070***	**Significant**
IGNORED INJURY				
Yes	27	9	1	37
	19.1%	7.3%	7.7%	13.4%
No	114	114	12	240
	80.9%	92.7%	92.3%	86.6%
Total	141	123	13	277
	100.0%	100.0%	100.0%	100.0%
	Value	**df**	**Asymp. Sig. (2-sided)**	
Pearson Chi-Square	**8.325**	**2**	**.016****	**Significant**

5. CHRONIC INFECTIOUS DISEASES

Cross tabulation was done according to the educational level **such as "Illiterate", 1-7 and 8+** of the **elderly women** related to **Tuberculosis** in the Rafi Nagar slum area. Chi square test shows that there is significant difference (**.000* at 1% level of significance)** between the educational level of the aged women and **Tuberculosis** they have, treating null hypothesis that there is no association between educational level of elderly women (>=60) and **Tuberculosis.** (Table no. 5).

Table no. 5 : Cross tabulation of educational groups of elderly females related to Tuberculosis in Rafi Nagar slum area, Deonar, Mumbai.

TUBERCULOSIS	**Illiterate**	**1-7**	**8+**	**TOTAL**
Yes	15	12	6	33
	10.6%	9.8%	46.2%	11.9%
No	126	111	7	244

	89.4%	90.2%	53.8%	88.1%
Total	141	123	13	277
	100.0%	100.0%	100.0%	100.0%
	Value	**df**	**Asymp. Sig. (2-sided)**	
Pearson Chi-Square	**15.288**	**2**	**.000*** **	**Significant**

5.1 ACUTE INFECTIOUS DISEASE WITH CHRONIC OUTCOMES

Cross tabulation was done according to the educational level **such as "Illiterate", 1-7 and 8+** of the **elderly women** related to **Skin Lesion and Joint Pain** in the Rafi Nagar slum area. Chi square test shows that there is significant difference (**.013** at 5% level of significance, .003*** at 1% level of significance)** between the educational level of the aged women and **Skin Lesion and Joint Pain** respectively they have, treating null hypothesis that there is no association between educational level of elderly women (>=60) and **Skin Lesion and Joint Pain** respectively. (Table no. 6).

Table no. 6 : Cross tabulation of educational groups of elderly females related to Skin Lesion and Joint Pain in Rafi Nagar slum area, Deonar, Mumbai.

SKIN LESION	**Illiterate**	**1-7**	**8+**	**TOTAL**
Yes	19	5	0	24
	13.5%	4.1%	0.0%	8.7%
No	122	118	13	253
	86.5%	95.9%	100%	91.3%
Total	141	123	13	277
	100.0%	100.0%	100.0%	100.0%
	Value	**df**	**Asymp. Sig. (2-sided)**	
Pearson Chi-Square	**8.645**	**2**	**.013****	**Significant**
JOINT PAIN (KNEE)	**Illiterate**	**1-7**	**8+**	**TOTAL**
Yes	120	88	7	215
	85.1%	71.5%	53.8%	77.6%
No	21	35	6	62
	14.9%	28.5%	46.2%	22.4%
Total	141	123	13	277
	100.0%	100.0%	100.0%	100.0%
	Value	**df**	**Asymp. Sig. (2-sided)**	
Pearson Chi-Square	**11.391**	**2**	**.003*** **	**Significant**

6. BEHAVIOR AND HABITS

Cross tabulation was done according to the educational level **such as "Illiterate", 1-7 and 8+** of the **elderly women** related to **Tobacco Use** in the Rafi Nagar slum area.
Chi square test shows that there is significant difference (**.000*** at 1% level of significance)** between the educational level of the aged women and **Tobacco Use** they have, treating null hypothesis that there is no association between educational level of elderly women (>=60) and **Tobacco Use.** (Table no. 7).

Table no. 7 : Cross tabulation of educational groups of elderly females related to Tobacco Use in Rafi Nagar slum area, Deonar, Mumbai.

TOBACCO USE	**Illiterate**	**1-7**	**8+**	**TOTAL**
Yes	82	25	4	111
	58.2%	20.3%	30.8%	40.1%
No	59	98	9	166

	41.8%	79.7%	69.2%	59.9%
Total	141	123	13	277
	100.0%	100.0%	100.0%	100.0%
	Value	**df**	**Asymp. Sig. (2-sided)**	
Pearson Chi-Square	**39.642**	**2**	**.000*** **	**Significant**

6.1 MORBID CONDITIONS AMONG ELDERLY PEOPLE

Cross tabulation was done according to the **educational level** such as **"Illiterate", 1-7 and 8+** of the **elderly women** related to **Musculoskeletal Disorder and Gastrointestinal Disorder** respectively they have, treating null hypothesis that there is no association between **educational leve** of elderly women (>=60) and **Musculoskeletal Disorder and Gastrointestinal Disorder** respectively in the Rafi Nagar slum area. Chi square test shows that there is significant difference (**.001*** at 1% level of significance and .054* at 10% level of significance)** respectively between the educational level of the aged women and the **Musculoskeletal Disorder and Gastrointestinal Disorder** respectively they have, treating null hypothesis that there is no association between **educational level** of elderly women (>=60) and **Musculoskeletal Disorder and Gastrointestinal Disorder** respectively. (Table no. 8).

Table no. 8 : Cross tabulation of educational groups of elderly females related to Musculoskeletal Disorder and Gastrointestinal Disorder in Rafi Nagar slum area, Deonar, Mumbai.

MUSCULOSKELETAL DISORDER	**Illiterate**	**1-7**	**8+**	**TOTAL**
Yes	57	24	2	83
	40.4%	19.5%	15.4%	30.0%
No	84	99	11	194
	59.6%	80.5%	84.6%	70.0%
Total	141	123	13	277
	100.0%	100.0%	100.0%	100.0%
	Value	**df**	**Asymp. Sig. (2-sided)**	
Pearson Chi-Square	**15.073**	**2**	**.001*** **	**Significant**
GASTROINTESTINAL DISORDER				
Yes	42	45	8	95
	29.8%	36.6%	61.5%	34.3%
No	99	78	5	182
	70.2%	63.4%	38.5%	65.7%
Total	141	123	13	277
	100.0%	100.0%	100.0%	100.0%
	Value	**df**	**Asymp. Sig. (2-sided)**	
Pearson Chi-Square	**5.840**	**2**	**.054***	**Significant**

6.2 SIGN OF DEPRESSION

Cross tabulation was done according to the **educational level** such as **"Illiterate", 1-7 and 8+** of the **elderly women** related to **Signs of depression in the elderly such as feeling "emptiness and/or ongoing sadness", "Eating less than usual", , "Loss of interest or pleasure in everyday activities", finding "A hard time focusing, remembering, or making decisions"** respectively they have, treating null hypothesis that there is no association between age of elderly women (>=60) and **Signs of depression in the elderly such as feeling "emptiness and/or ongoing sadness", "Eating less than usual", , "Loss of interest or pleasure in**

everyday activities", finding "A hard time focusing, remembering, or making decisions" respectively in the Rafi Nagar slum area.

Chi square test shows that there is significant difference **(.003*** at 1% level of significance, .013** at 5% level of significance, .010** at 5% level of significance, .007*** at 1% level of significance)** respectively between the educational level of the aged women and the **Signs of depression in the elderly such as feeling "emptiness and/or ongoing sadness", "Eating less than usual", "Loss of interest or pleasure in everyday activities", finding "A hard time focusing, remembering, or making decisions"** respectively they have, treating null hypothesis that there is no association between age of elderly women (>=60) and **Signs of depression in the elderly such as feeling "emptiness and/or ongoing sadness", "Eating less than usual","Loss of interest or pleasure in everyday activities", finding "A hard time focusing, remembering or making decisions"** (Table no. 9).

Table no. 9 : Cross tabulation of educational groups of elderly female related to Signs of depression in the elderly such as feeling "emptiness and/or ongoing sadness", "Eating less than usual", , "Loss of interest or pleasure in everyday activities", finding "A hard time focusing, remembering, or making decisions" in Rafi Nagar slum area, Deonar, Mumbai.

EMPTINESS…	**Illiterate**	**1-7**	**8+**	**TOTAL**
Yes	24	5	2	31
	17.0%	4.1%	15.4%	11.2%
No	117	118	11	246
	83.0%	95.9%	84.6%	88.8%
Total	141	123	13	277
	100.0%	100.0%	100.0%	100.0%
	Value	**df**	**Asymp. Sig. (2-sided)**	
Pearson Chi-Square	**11.337**	**2**	**.003*** **	**Significant**
EATING LESS…				
Yes	76	44	6	126
	53.9%	35.8%	46.2%	45.5%
No	65	79	7	151
	46.1%	64.2%	53.8%	54.5%
Total	141	123	13	277
	100.0%	100.0%	100.0%	100.0%
	Value	**df**	**Asymp. Sig. (2-sided)**	
Pearson Chi-Square	**8.709**	**2**	**.013****	**Significant**
LOSS OF INTEREST				
Yes	35	16	0	51
	24.8%	13.0%	0.0%	18.4%
No	106	107	13	226
	75.2%	87.0%	100%	81.6%
Total	141	123	13	277
	100.0%	100.0%	100.0%	100.0%
	Value	**df**	**Asymp. Sig. (2-sided)**	
Pearson Chi-Square	**9.182**	**2**	**.010****	**Significant**
HARD TIME TO REMEMBER	**Illiterate**	**1-7**	**8+**	**TOTAL**
Yes	39	15	2	56
	27.7%	12.2%	15.4%	20.2%
No	102	108	11	221
	72.3%	87.8%	84.6%	79.8%
Total	141	123	13	277
	100.0%	100.0%	100.0%	100.0%
	Value	**df**	**Asymp. Sig. (2-sided)**	
Pearson Chi-Square	**9.938**	**2**	**.007*** **	**Significant**

7. HEALTH FACILITIES AVAILABLE AND THEIR UTILIZATION AMONG ELDERLY IN THE SLUM AREA

Table no. 8 shows the Health facilities available in the study area and the utilization of such facilities among elderly in the Rafi Nagar slum area. In the Rafi Nagar slum area, 36.5% of elderly female even not sought treatment from Govt. hospital. Only 74.4% of elderly women have taken treatment from Govt. Hospital from Rafi Nagar slum area, 91.6 female were satisfied with the Govt. Hospital treatment. Those elderly women who have taken treatment from Private Hospital were only 65.3%. Even after taking treatment from private hospital, 24.2% of elderly women respectively were found unsatisfactory (Table no. 10).

Table 10: Health facilities available and their utilization of facilities among elderly in the Rafi nagar slum area, Deonar, Mumbai.

	Yes(%)	No (%)	Total (%)
Have you sought treatment_FEMALE	176 (63.5%)	101 (36.5%)	277 (100.0%)
If yes, from Govt Hospital_FEMALE	131 (74.4%)	45 (25.6%)	176 (100.0%)
Are you satisfied with Govt treatment_FEMALE	120 (91.6%)	11 (8.4%)	131 (100.0%)
If no, taken treatment from Private hospital_FEMALE	66 (65.3%)	35 (34.7%)	101 (100.0%)
Are you satisfied with treatment taken from private hospital_FEMALE	50 (75.8%)	16 (24.2%)	66 (100.0%)

8. RESULTS AND DISCUSSION

There is strong evidence that diabetes can be prevented or delayed in persons at high risk by repeated counselling on weight-loss and increasing physical activity. There is strong evidence to support treating hypertensive persons aged 60 years or older to a BP goal of less than 150/90 mm Hg. For all persons with hypertension, the potential benefits of a healthy diet, weight control, and regular exercise cannot be overemphasized. These lifestyle treatments have the potential to improve BP control and even reduce medication needs to control even other diseases.

9. POLICY IMPLICATIONS

Elderly women living in slums have a high risk of developing hypertension. Furthermore, the results indicate that awareness and treatment of hypertension in urban area residents is inadequate. Generally, in developing countries, prevalence of hypertension appears to be rising rapidly and the societal response is fragmented with very low levels of awareness, treatment and control. This is worse in the densely populated the urban areas. The results discussed above have important implications both for clinicians and public health professionals. Moreover, there is need for public education concerning management of hypertension starting early in life and regular screening of people at risk in the urban areas. The high prevalence of risk factors for non-communicable diseases across elderly age groups in this urban area community indicates the likelihood of a high future burden of illness. Immediate action for prevention and control is required to prevent the situation from worsening.

10. FURTHER RESEARCH

The project in the slum area, among elderly women in Mumbai was undertaken to have a firsthand knowledge about the diseases /infections particularly chronic and non-chronic diseases associated with elderly women in Mumbai and efforts are also made to know its prevalence. The disease pattern among elderly women was found to be very high. The awareness increases with the increase in the level of education. This meager research is not enough to generalize the awareness about the diseases among elderly women in a slum area and there is a scope for further research in such area with a larger sample size.

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REFERENCE:

1. Alonge O H A (2014) Reducing the global burden of childhood unintentional injuries. Archives of Disease in Childhood 99: 62–69. doi: 10.1136/archdischild-2013-304177 PMID: 24187033.

2. Anju Ade, R V Manasa, S G Hiremath (2014): Morbidity Pattern among Urban Slum Women beyond Reproductive Years, International Journal of Medical and Health Sciences, Journal Home Page: http://www.ijmhs.net ISSN:2277-4505, Dec 04, 2014.

3. Arvind Kumar Singh, Kalaivani Mani,[1] Anand Krishnan, Praveen Aggarwal,[2] and Sanjeev Kumar Gupta **(2012) Prevalence, Awareness, Treatment and Control of Diabetes Among Elderly Persons in an Urban Slum of Delhi,** Indian J Community Med. 2012 Oct-Dec; 37(4): 236–239. doi: 10.4103/0970-0218.103472, PMCID: PMC3531017, PMID: 23293438.

4. B. Nongkynrih, B. K. Patro and C. S. Pandav, "Current Status of Communicable and Non-Communicable Diseases in India," Journal of Association of Physicians in India, Vol. 52, 2004, pp. 118-123. [Citation Time(s):1].

5. Binu Santha1 *, Vrinda Saxena2 , Manish Jain3 , Naveen S Yadav4 , Vidhatri Tiwari5 and Utkarsh Tiwari6 (2017): Oral Sub mucous Fibrosis and Tobacco Use among Slum Dwellers of Bhopal City, India, ISSN: 2161-1122, Dentistry 2017, 7:10 DOI: 10.4172/2161-1122.1000455 Research Article, OMICS International.

6. Bruno Luiz Guidolin, Irênio Gomes da Silva Filho, Eduardo Lopes Nogueira, Francisco Pascoal Ribeiro Junior, Alfredo Cataldo Neto (2016) : Patterns of alcohol use in an elderly sample enrolled in the Family Health Strategy program in the city of Porto Alegre, Brazil, Ciência & Saúde Coletiva, *Print version* ISSN 1413-8123*On-line version* ISSN 1678-4561, **Ciênc. saúde coletiva vol.21 no.1 Rio de Janeiro Jan. 2016,** http://dx.doi.org/10.1590/1413-81232015211.10032015

7. Depression, WHO. Available at: http://www.who. int/mediacentre/factsheets/fs369/en/. Accessed on 7 March 2017.

8. Dr. Kedar J. Raikar, Dr. Gajanan D. Velhal & Dr. Anubha Shukla (2017): Profile of Type 2 Diabetic Patients in Urban Slums of Mumbai, Global Journal of Medical Research: F Diseases Volume 17 Issue 3 Version 1.0 Year 2017 Type: Double Blind Peer Reviewed International Research Journal Publisher: Global Journals Inc. (USA) Online ISSN: 2249-4618 & Print ISSN: 0975-5888

9. E. D. Sclar, P. Garau and G. Carolini, "The 21st Century Health Challenge of Slums and Cities," Lancet, Vol. 365, No. 9462, 2005, pp. 901-903. doi:10.1016/S0140-6736(05)71049-7

10. G. L. Ooi and K. H. Phua, "Urbanization and Slum Formation," Journal of Urban Health, Vol. 84, No. 1, 2007, pp. 27-34. doi:10.1007/s11524-007-9167-5.

11. Golshan A, Patel C, Hyder AA (2013) A systematic review of the epidemiology of unintentional burn injuries in South Asia. Journal of Public Health 35: 384–396. doi: 10.1093/pubmed/fds102 PMID: 23321681

12. Joel Negin, SeyeAbimbola, Ben J.Marais (2015): **International Journal of Infectious Diseases,** Volume 32, March 2015, Pages 135-137, open access, **Tuberculosis among older adults – time to take notice,** https://doi.org/10.1016/j.ijid.2014.11.018Get rights and content, Under a Creative Commons license

13. L. W. Riley, A. I. Ko, A. Unger, et al., "Slum Health: Diseases of Neglected Populations," BMC International Health and Human Rights, Vol. 7, 2007, p. 2. doi:10.1186/1472-698X-7-2

14. Life expectancy in India goes up by 5 years in a decade. The Times of India. Available at: http://timesofindia.indiatimes.com/india/Lifeexpectancy-in-India-goes-up-by-5-years-in-adecade/articleshow/29513964. Accessed on 7 March 2017

15. Menaka Rao (2015): Why there might be more women suffering from tuberculosis in India than we think, Sunday, July 29th 2018, Scroll.in Oct 22, 2015 · 05:30 pm

16. P.M. Kearney, M. Whelton, K. Reynolds, P. Muntner, P.K. Whelton, J. He**Global burden of hypertension: analysis of worldwide data,** Lancet, 365 (2005), pp. 217-223, ArticleDownload PDFView Record in Scopus

17. R. Gupta **Trends in hypertension epidemiology in India,** J Hum Hypertens, 18 (2004), pp. 73-78, CrossRefView Record in Scopus

18. Reddy KS, Shah B, Varghese C, Ramadoss A. Responding to the threat of chronic diseases in India. Lancet 2005;366: 1744-9.

19. S. Sen, J. Hobson and P. Joshi, "The Pune Slum Census: Creating a Socio-Economic and Spatial Information Base on a GIS for Integrated and Inclusive City Development," Habitat International, Vol. 27, No. 4, 2003, pp. 595-611. doi:10.1016/S0197-3975(03)00007-9 [Citation Time(s):2].

20. Siddharth Sarkar**,** Arpit Parmar**,** Biswadip Chatterjee **(2015): Substance use disorders in the elderly: A review,** Journal of Geriatric Mental Health, **Year** : 2015 | **Volume** : 2 | **Issue** : 2 | **Page** : 74-82, **DOI:** 10.4103/2348-9995.174271,

21. Strong K, Mathers C, Leeder S, Beaglehole R. Preventing chronic diseases: how many lives can we save? Lancet 2005; 366: 1578-82.

22. SuvroBanerjee, Tapan KumarMukherjee, SrabashiBasu (2016), **Prevalence, awareness, and control of hypertension in the slums of Kolkata, Indian Heart Journal,** Volume 68, Issue 3, May–June 2016, Pages 286-294, https:// doi.org /10.1016 /j.ihj.2015.09.029, Get rights and content, Open Access funded by Cardiological Society of India, Under a Creative Commons license

23. Unger and L. W. Riley, "Slum Health: From Understanding to Action (Essay)," PLoS Medicine, Vol. 4, No. 10, 2007, pp. 1561-1566. [Citation Time(s):1]

24. United Nations Settlement Programe (UN-HABITAT), "State of World Cities," 2006/2007. www.unhabitat.org.SOWC/06/07/13/slum2 [Citation Time(s):1]

25. World Health Organization. Confronting the tobacco epidemic in an era of trade liberation. Geneva: World Health Organization; 2003.