

## Morbidity Pattern among Elderly Population of Changu Narayan Municipality, Bhaktapur

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### ABSTRACT

**Background:** The Senior Citizens Acts 2063, Nepal defines the senior citizens (elderly population) as “people who are 60 years and above”. Health is the most important determinant of the quality of life of people. Ill-health becomes a major obstacle for the well-being of the elderly population. This study was conducted to assess the morbidity pattern in elderly population.

**Methods:** A community based cross-sectional study was carried out in field practice area of the Department of Community Medicine. 124 elderly population were selected by convenient sampling technique. A structured questionnaire was used to collect the data. Data was analyzed using SPSS version 20. Chi-square was used to test the association and  $p < 0.05$  was considered as significant.

**Results:** The mean age of elderly population was 69.85 years. Majority (47.6%) of them were in the age group of 60-69 years. Males (50.8%) were more than females (49.2%). Twelve respondents (9.7%) were not suffering from any form of morbidity. Most common morbidity was muscular skeleton problem (40.8%), followed by hypertension (36.3%), diabetes (29.8.8%), psychological (23.4%) and respiratory (18.6%). Other morbidities gastrointestinal, dental, ENT, eye and genitourinary system were found in around ten percentage of elderly population

**Conclusions:** Majority of the elderly population were suffering from non-communicable diseases. There is a need for health care services at all level with special focus on disease prevention, early detection and treatment for elderly population. This study found high prevalence of musculoskeletal, hypertension, diabetes and psychological problem and low prevalence of respiratory, gastrointestinal, dental, ENT, genitourinary and eye problem.

**Keywords:** Changu Narayan; diabetes; hypertension; musculo skeleton; morbidity pattern; senior citizens.

### INTRODUCTION

The age of 60 years is said to be the beginning of old age.<sup>1</sup> The United Nation defines over 60 years of age people as ‘ageing people’.<sup>2</sup> The Senior Citizens Acts 2063, Nepal defines the senior citizens as “people who are 60 years and above”.<sup>3</sup> In 2017, elderly population comprise 13% of the global population in the world. The elderly population is growing at a rate of about 3% per year.<sup>4</sup>

In Nepal, there were 2.1 million in 2011, elderly population, which constitute 8.1% of the total population. It is estimated that elderly population is still more likely to increase rapidly in future.<sup>5</sup> Growing elderly population led to an increased demand for health and social services. Nepal is celebrating the International Day of older persons on October 1st.<sup>6</sup> The Nepal government provides Rs 1,000 per month as social

security allowance for people aged 70 and above.<sup>7</sup>

### METHODS

A community based cross sectional study was conducted in field practice area of Changu Narayan Municipality of Bhaktapur district. Three wards were randomly selected. The study was carried out on November 2017. People aged 60 years and above, who were permanent resident of the study area and gave written consent included in this study. If some elderly population did not consent for the interview or could not be contacted then the next person was selected from the same family. Convenient sampling technique was used and visited 239 households. 124 elderly populations were interview from 78 families. A structured questionnaire was used and required information was collected from the elderly population using the interview method by house to house visit. Morbidity was assessed by history taking,

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reviewing past medical records and treatment taken by the elderly. Data analysis was done using SPSS version 20. The Chi square test was used as test of significance. Ethical clearance was taken from the Institutional Review Committee of Kathmandu Medical College.

## RESULTS

The mean age of study subject was 69.85 years with standard deviation of 7.57 years and maximum age of respondent was 90 years. There were 5.2 family members per family. Two third of respondents were from joint family. 95% of respondents were Hindu by religion.

Most of the elderly (28.2%) were in the age group of 60-64 years and least of elderly (8.9%) were 80 years and above. Half of the respondents were males (50.8%). There was no significant difference found between age and sex of the elderly population ( $p=0.227$ ) (Table 1).

**Table 1. Age and Gender wise distribution of elderly population.**

Age Group	Gender				Total	%
	Male	Percent	Female	%		
60-64	15	23.8	20	32.8	35	28.2
65-69	12	19.0	12	19.7	24	19.4
70-74	10	15.9	15	24.6	25	20.2
75-79	18	28.6	11	18.0	29	23.4
≥80	8	12.7	3	4.9	11	8.9
Total	63	100.0	61	100.0	124	100.0

P-value=0.227

One third 34.7% of respondents were belonging to Newar caste followed by Chhetry and Brahmin 30.6% and 29.8% respectively. Majority of study populations (96.8%) were Hindu by religion and two third (66.7) of them living with joint family (Table 2).

**Table 2. Demographic variables of elderly population.**

Variable		Frequency	Percent
Caste	Newar	43	34.7
	Chhetry	38	30.6
	Brahmin	37	29.8
	Others	6	4.8
Religion	Hindu	120	96.8
	Buddhist	2	1.6
	Others	2	1.6
Type of family	Nuclear	41	33.1
	Joint/ Extended	83	66.9

The morbidity of musculo skeleton (40.8%) was found more prevalent. It was observed that 36.3% of study population was diabetes followed by hypertension and psychological problem with 29.8% and 23.4% respectively.

Twelve respondents (9.7%) had reported that they did not have any morbidity. 75% of respondents were suffering from one to three morbidities and 15.3% respondents were suffering from four and more than four morbidities. There was no significant difference in morbidities between male and female. Except musculo skeleton and hypertension, males were having more odds of developing different morbidities than females (Table 3).

**Table3. Gender wise morbidity pattern.**

Complaint	Gender				Total	Percent	Odds Ratio	P-value	95% CI
	Male	Percent	Female	Percent					
Musculo skeleton	15	46.9	17	53.1	32	40.8	0.80	0.605	0.36-1.81
Respiratory	14	22.2	9	14.8	23	18.6	1.65	0.287	0.65-4.16
Hypertension	21	33.3	24	39.3	45	36.3	0.77	0.486	0.37-1.60
Diabetes	20	31.7	17	27.9	37	29.8	1.20	0.637	0.56-2.60
Gastrointestinal	9	14.3	5	8.2	14	11.3	1.90	0.276	0.59-5.93
Psychological	16	25.4	13	21.3	29	23.4	1.28	0.558	0.54-2.89
Dental	9	14.3	7	11.5	16	12.9	1.28	0.466	0.45-3.70
ENT	8	12.7	7	11.5	15	12.1	1.12	0.834	0.38-3.31
Ophthalmology	7	11.1	4	6.5	11	8.9	1.78	0.882	0.49-6.42
Genitourinary	7	11.1	5	8.2	12	9.7	1.40	0.584	0.42-4.68

## DISCUSSION

The mean age of respondents of present study was 69.85 years, which is comparable with result of Purty et al.<sup>7,8</sup> The highest portion of study population was observed in age group 60-64 years in this study. Similar findings were observed by study done by Kumar et al.<sup>8,9</sup> Two third of respondents were belong to joint family which is slightly lower than result of Verma et al<sup>9,10</sup> where it was 76%. The prevalence of morbidity among elderly was found to be 90.3%. It was consistent to various study's studies findings 88.6% by Bartwal et al,<sup>11,12</sup> 88.8% by Agrawal et al<sup>12,13</sup> 88.5% by Shankar et al,<sup>13,14</sup> and 96.3% by Hameed S et al.<sup>14,15</sup>

In present study, 75% of respondents were suffering from one to three morbidities and 13.7% respondents were suffering from four and more than four morbidities. This finding was which is consistent with the finding of Bartwal et al<sup>11,12</sup> where it was 77.2% of the elderly had with one to three morbidities and 11.4% had four and more than four morbidities. Hameed et al<sup>14,15</sup> observed in his study that 65.6% were having one to three morbidities and 30.6% of elderly were having four and more than four morbidities. Ashok et al<sup>15,16</sup> observed in his study that about half of the subjects (50.4%) were diagnosed as having one to three morbidities and 43.7% of elderly were having four and more than four morbidities. The numbers of morbidities were in increasing trend. This may be due to increases in awareness and health service facilities easily available.

Musculoskeletal problem was found in 40.8% of the elderly population in present study. Studies conducted by various other researchers reported prevalence of musculoskeletal problem ranging from 23.6% by Ashok et al,<sup>15,16</sup> 26% by Adebuseye et al<sup>16,17</sup> 34.8% by Bartwal et al,<sup>11,12</sup> 39.2% by Piramanayang et al,<sup>17,18</sup> 59.7% by Verma V et al<sup>10,11</sup> to 69.7% by Chauhan et al.<sup>18,19</sup> This variation may be due to different occupation and different study sites.

The prevalence of hypertension in this study was 36.3% which is consistent with finding of various studies conducted by Dhungana RR et al (32.5%),<sup>19,20</sup> Verma et al (33.25%),<sup>10,11</sup> Bhatta at el (34.4%)<sup>20,21</sup> Yadav et al (38.6%).<sup>21,22</sup> The prevalence of hypertension were found higher than present study Study conducted by Ashok et al (44.3%),<sup>15,16</sup> Shakyia et al (47%),<sup>22,23</sup> Prakash et al (48%),<sup>23</sup> Kumar et al (52.8%),<sup>9</sup> Hameed et al (56.8%)<sup>14,15</sup> were found higher than present study finding. This difference may be due to different difference study sites and study time period. The prevalence of diabetes in present study was 29.8%. The prevalence of diabetes

in other studies conducted by Piramanayang et al (3.7%),<sup>17,18</sup> Purty et al (8.1%),<sup>8,9</sup> Bhatta et al (10.6%)<sup>20,21</sup> Adebuseye et al (13.2%)<sup>16,17</sup> Kumar et al (13.4%)<sup>8,9</sup> and Hameed et al (19.7%)<sup>13,14</sup> were lower than that of the present study findings and higher in study conducted by Kumar et al (32.3%).<sup>9,10</sup> The prevalence of psychological problem in this study was 23.4% which is consistent with other the findings of Piramanayagam et al<sup>17</sup>, Verma et al,<sup>10,11</sup> and Kumar et al<sup>9,10</sup> where these were 23.5%, 29.7% and 29.2% respectively. The prevalence of ENT problem in this study was 12.1%. The studies conducted by other researchers reported the prevalence of ENT problem hearing impairment were 17.7% by Bartwal Jet al<sup>11,12</sup> and 17.9% by Bhatt et al.<sup>20,21</sup> In present study, the prevalence of eye disease was found very low 8.9%, while in other studies prevalence of eye disease reported ranges from 39.9% by Kumar et al<sup>19,20</sup> 53.6% by Bartwal J et al<sup>11,12</sup> to 71% by Piramanayagam et al.<sup>17,18</sup> Low in prevalence of eye disease may be due to very good services available in Nepal. In present study, 17.5% suffered from GIT disorder whereas in other studies prevalence of GIT disorder varies from 8.9% by Kumar R et al<sup>19,20</sup> to 29.3% by Hameed S et al.<sup>11,12</sup> The respiratory problem among elderly was 18.6% in the present study which was consistent with the finding of Bartwal et al<sup>11,12</sup> (13.4%) , Piramanayagam et al<sup>17,18</sup> (12.9%) and Verma et al<sup>10,11</sup> (11.2%) while in studies conducted by Bhatt et al, Sharma et al,<sup>13,14</sup> Ashok et al<sup>15,16</sup> and Prakash et al<sup>23</sup> prevalence was much higher i.e. 20.2%, 32.7%, 34.1% and 36% respectively. The high prevalence of GIT disorder respiratory problem may be due different food habits of Nepalese people and pollution at Kathmandu valley. The genitourinary problem contributed to 9.7% of respondents which was higher than the findings of Bartwal et al<sup>11,12</sup> 2.95% and lower than the findings of Hameed et al<sup>14,15</sup> 12.3%. This difference may be due to different sites.

## CONCLUSIONS

The present study reveals the high prevalence of musculoskeletal, hypertension, diabetes and psychological problem. Also the present study reveals the low prevalence of respiratory, gastrointestinal, dental, ENT, genitourinary and eye problem. The present study reveals morbidity among the elderly population are non-communicable diseases which can be prevented or postpone to a later stage by health education and life style modification. At present elderly population has not been fully established as a specialty in Nepal and there is less information about the morbidity pattern of the elderly to form the basis of any meaningful plan of action to improve the quality of life of the elderly

population. With an increasing elderly population in Nepal, such types of more research are needed for better documentation of their health profiles research are needed and to inform policy makers of the health problems. To reduce the morbidity Also, there is a need for health care services at all levels with special focus on disease prevention, early detection and treatment for elderly population.

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## REFERENCES

- Gorman M. Development and the rights of older people. In: Randel J, et al., Eds. The ageing and development report: poverty, independence and the world's older people. London, Earthscan Publications Ltd.,1999:3-21.
- Prakash IJ. Ageing in India. Geneva: World Health Organization; 1999 Apr. [\[FullText\]](#)
- The Senior Citizens Acts 2063, Nepal. Available from <http://www.lawcommission.gov.np> 24 Nov. 2006 [accessed on 12 June 2017]
- World Population Prospects: the 2017 Revision, Department of Economic and Social Affairs, Population Division, United Nations, New York, 2017
- Diwakar Khanal 20Nov Issues of Elderly Population in Nepal: Sharing4Good, 2015. Available from <http://www.Issues of Elderly Population in Nepal>. [accessed on 12 June 2017]
- The Himalayan Times, Kathmandu, Ageing population both cause for celebration and a challenge: UNFPA ,Published: October 01, 2016 5:22 am Nepal | Cited on August 09, 2018. Assessment of Social Security Allowance Program in Nepal : Government of Nepal: National Planning Commission Singh Durbar, Kathmandu, Nepal, May 2012. [www.npc.gov.np](http://www.npc.gov.np)
- Ojha Anup.: Senior citizens receive allowance. The Kathmandu Post, Kathmandu, July 1, 2017.
- Purty AJ, Bazroy J, Kar M, Vasudevan K, Veliath A, Panda P: Morbidity Pattern among the Elderly population in the Rural Area of Tamil Nadu, India. Turk J Med Sci 2006;36:45-50. [\[FullText\]](#)
- Kumar R, Bahal SP, Srivastava A; A comparative study of morbidity Pattern in elderly of rural and urban areas of Allahabad district, Utter Pradesh, India: International Journal of Medical Science and Public Health; 2016,5 (03), 430-433.
- Verma V, Prakash S, Parveen K, Shaikh S, Mishra N; Morbidity Pattern of geriatric population in rural areas of western Utter Pradesh: International Journal of Community Medicine and Public Health; 2016 May, 3 (5), 1152-1156.
- Bartwal J, Rawat CM, Awasthi S. Morbidity pattern among the geriatric population in rural area of Haldwani Block in Nainital district of Uttarakhand. Indian Journal of Forensic and Community Medicine. 2016;3(3):209-13. [\[Link\]](#)
- Agrawal S, Deo J, Verma AK, Kotwal A. Geriatric health: need to make it an essential element of primary health care. Indian journal of public health. 2011 Jan 1;55(1):25. [\[FullText\]](#)
- Shankar R, Tondon J, Gambhir IS et al. Health Status of Elderly population in rural area of Varanasi district. Indian J Public Health 2007;51:56-8. [\[Link\]](#)
- Hameed S, Kumar N, Naik PM, Sachidananda K, Prasanna KS. Morbidity pattern among the elderly population in a rural area of Dakshina Kannada, Karnataka - a cross sectional study. National Journal of Community Medicine. Apr-Jun 2015;6 (2):222-225.
- Ashok KT, Sowmiya KR, Radhika G. Morbidity Pattern among the Elderly People Living in a Southern rural India. Natl J Res Community Med. 2012;1:15-19.
- Adebusoye LA, Ladipo MM, Owoaje ET, Ogunbode AM. Morbidity pattern amongst elderly patients presenting at a primary care clinic in Nigeria. Afr J Prim Health care Fam Med. 2011;3(1). [\[PubMed\]](#)
- Piramanayagam A, Bayapareddy N, Pallavi M, Madhavi E, Nagarjuna RN, Radhakrishna L. A cross sectional study of the morbidity pattern among the elderly people: South India. International Journal of Medical Research & Health Science. 2013;2(3):372-9.
- Chauhan P, Chandrashekar V. A study on morbidity pattern among the geriatric people of Venkatachalem village, Nellore District, AP. MRIMS, J Health Sciences 2013;1:48-53. [\[FullText\]](#)
- Dhungana RR, Pandey AR, Bista B, Joshi S, Devkota S. Prevalence and associated factors of hypertension: A community based cross sectional study in municipalities of Kathmandu, Nepal. Int J Hypertens. 2016;2016:1656938. [\[Link\]](#)
- Bhatt R, Gadhvi MS, Sonaliya KN, Solanki A, Nayak H. An epidemiological study of the Morbidity Pattern among the Elderly Population in Ahmedabad, Gujarat. National Journal of Community Medicine July-Sept.2011;2(2):233-236. [\[FullText\]](#)

21. Yadav A, Prasad JB, Shekhar C, Vishvakarma. A study of morbidity pattern among elderly population in urban India. *Journal of Social Health Diabetes* 2017; 5:100-6. [\[FullText\]](#)
22. Shakya YL, Shrestha B, Aacharya R, Gupta S. Disease Patterns among the Elderly People coming in Tribhuvan University Teaching Hospital, Kathmandu, Nepal. *Journal of Institute of Medicine*, August 2017; 39 (2):76-79. [\[FullText\]](#)
23. Prakash R, Choudhary SK, Singh US. A study of morbidity pattern among geriatric population in an urban area of Udaipur, Rajasthan. *Indian Journal of Community Medicine*, Jan-Mar; 2004; 29 (1):35-40. [\[FullText\]](#)