



**SELF-REPORTED PREVALENCE OF NON-COMMUNICABLE DISEASES AMONG
ELDERS IN THANLYIN TOWNSHIP, YANGON REGION, MYANMAR: A CROSS-
SECTIONAL STUDY**

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ABSTRACT

Introduction: Non-communicable diseases (NCDs) are also known as chronic diseases of long duration. Globally, 40 million deaths are caused by NCDs in each year, representing 70% of all annual deaths. Besides, the socio-economic impact of NCDs are also significant. Therefore, the present study was done to determine the prevalence and risk factors of NCDs among elders in Yangon, Myanmar. **Materials and Methods:** A cross-sectional study was conducted in Thanlyin township, Yangon city during 2016. A total of 411 elder persons were recruited into the study using systematic random sampling. Informed consent was taken from every respondent and interview method was utilized in data collection. The presence of any NCDs has been confirmed by observing medical records and reports. **Results:** The overall self-reported prevalence of NCDs was 24.8% (95% CI: 20.7%, 29.3%). The prevalence was higher among females, those with low education status and respondents whose age was equal or more than 70 years. Based on multiple logistic regression analysis, having regular exercise was identified as a significant protective factor for the development of NCDs ($p < 0.001$). Diabetes mellitus (15.6%) was the commonest type of NCDs among elders followed by hypertension (8.5%) and heart disease (4.9%). **Conclusion:** The prevalence of NCDs among elder population is high. Prevention and control activities of NCDs as well as elderly health care program should be intensified. Practicing regular exercise should be promoted and strengthened.

KEYWORDS: Elders; exercise; Myanmar, NCDs, Yangon.

INTRODUCTION

Non-communicable diseases (NCDs) are also known as chronic diseases of long duration. Globally, 40 million deaths are caused by NCDs in each year, representing 70% of all annual deaths. In spite of being preventable in nature, NCDs affect people of all age groups, countries and regions. The socio-economic and developmental impact of NCDs are also significant.^[1,2] Besides, NCDs are no longer considered as diseases of rich countries. About 80% of deaths due to NCDs has been taken place in both low and middle income countries.^[3-8] As a developing country Myanmar is facing an increasing burden of NCDs.⁽⁹⁻¹²⁾ Neighboring South and South East Asian countries like India, Sri Lanka, Thailand and Malaysia are also having similar situation.^[13-15] Therefore, the present study was done to determine the prevalence and risk factors of NCDs among elders in Thanlyin Township, Yangon Region, Myanmar during 2016.

MATERIALS AND METHODS

A cross-sectional study was conducted in Thanlyin Township, Yangon Region during 2016. Sample size was

calculated using Epi-info version 7.0 statistical software. Prevalence of NCD among elders was estimated to be 30% in sample size calculation.^[5,10,16,17] Confidence level and precision (i.e. confidence limits) were set at 95% and 5%, respectively. A total of 411 elder persons were recruited into the study using systematic random sampling. Informed consent was taken from every respondent and interview method was utilized in data collection. Privacy was ensured at the time of interview in order to improve the accuracy of data. A person was considered as an elder person if his or her age was 60 years or more at the time of data collection. Those with hearing (or) psychiatric problems were excluded from the study. If there were two or more elder persons in a house, only one was selected randomly. The presence of any NCDs was based on self-report but it was confirmed by checking medical records and reports. Age, sex, education status and practicing regular exercise were regarded as potential risk factors in this study. Education status was categorized into three groups; low (i.e. no formal education), middle (i.e. primary and middle school level) and high (i.e. high school and university level including graduates). Practicing regular exercise

was also divided into three categories; never (i.e. none at all), sometimes (i.e. less than 4 days/week) and usually (i.e. 4 to 7 days/week). Data entry and analysis was done using STATA version 11.0 statistical package. Chi-square and multiple logistic regression analyses were applied in determination of risk factors.

RESULTS

Altogether 411 elder persons were included in the study. Socio-demographic characteristics of the participants are shown in Table 1.

Table 1: Socio-demographic characteristics of the participants.

Variables	Frequency (n = 411)	Percent
Age-group (years)		
60 – 64	214	52.1
65 – 69	115	28.0
≥ 70	82	19.9
Sex		
Male	177	43.1
Female	234	56.9
Education status		
Low	186	45.3
Middle	135	32.8
High	90	21.9
Practicing regular exercise		
Never	118	28.7
Sometimes	188	45.7
Usually	105	25.6

Out of 411 participants, 102 reported the presence of any form of NCDs. Thus the overall self-reported prevalence of NCDs was 24.8% (95% CI: 20.7%, 29.3%). Table 2 reveals the prevalence of different types of NCDs among participants. Diabetes mellitus (15.6%) was the commonest type of NCDs among elders followed by hypertension (8.5%) and heart diseases (4.9%).

Table 2: The self-reported prevalence of different types of NCDs among participants.

Types of NCDs	Frequency (n = 411)	Percent
- Diabetes	64	15.6
- Hypertension	35	8.5
- Heart diseases	20	4.9
- Joint diseases	4	1.0
- Kidney diseases	3	0.7
- Liver diseases	2	0.5
- Asthma	2	0.5
- Thyroid diseases	1	0.2

* 29 elder persons are reportedly suffering from more than one disease.

The prevalence of self-reported NCDs was higher among older age-group (i.e., ≥ 70 years old), females, those with low education status and respondents who never practiced regular exercise. All variables except sex were significantly associated with the presence of NCDs (Table 3).

Table 3: The presence of NCDs according to age, sex, education status and exercise

Variables (n)	NCDs		p-values*
	Present	Absent	
Age-group (years)			0.01
60 – 64 (214)	46 (21.5%)	168 (78.5%)	
65 – 69 (115)	25 (21.7%)	90 (78.3%)	
≥ 70 (82)	31 (37.8%)	51 (62.2%)	
Sex			0.068
Male (177)	36 (20.3%)	141 (79.7%)	
Female (234)	66 (28.2%)	168 (71.8%)	
Education status			0.02
Low (186)	43 (23.1%)	143 (76.9%)	
Middle (135)	44 (32.6%)	91 (67.4%)	
High (90)	15 (16.7%)	75 (83.3%)	
Practicing regular exercise			< 0.001
Never (118)	51 (43.2%)	67 (56.8%)	
Sometimes (188)	33 (17.6%)	155 (82.4%)	
Usually (105)	18 (17.1%)	87 (82.9%)	

* p-values were those of Chi-squared tests.

Multiple logistic regression analysis with backward deletion strategy was done to determine the significant risk factors of NCDs. Results of the univariate analysis and multivariate analysis (full model) Are shown in Table 4. Only the variable, practicing regular exercise was included in the final model. Therefore, having

regular exercise was considered as a significant protective factor for the development of NCDs (Table 4).

Table 4: Results of multiple logistic regression analysis.

Variables	Univariate analysis		Multivariate analysis*	
	OR _{crude} (95% CI)	p-values	OR _{adjusted} (95% CI)	p-values
Age-group (years)				
- 60 – 64	Reference		Reference	
- 65 – 69	0.01 (0.59, 1.76)	0.959	0.98 (0.56, 1.75)	0.959
- ≥ 70	2.22 (1.28, 3.86)	0.005	1.56 (0.86, 2.82)	0.144
Sex				
- Male	Reference		Reference	
- Female	1.54 (0.97, 2.45)	0.069	1.35 (0.82, 2.21)	0.238
Education status				
- Low	Reference		Reference	
- Middle	1.61 (0.98, 2.64)	0.060	1.60 (0.94, 2.73)	0.083
- High	0.66 (0.35, 1.28)	0.219	0.78 (0.39, 1.54)	0.467
Practicing regular exercise				
- Never	Reference		Reference	
- Sometimes	0.28 (0.17, 0.47)	< 0.001	0.33 (0.19, 0.57)	< 0.001
- Usually	0.27 (0.15, 0.51)	< 0.001	0.29 (0.15, 0.56)	< 0.001

* Results of the full model. Final model contained practicing regular exercise as a significant independent variable. Other independent variables such as age, sex and education status were not included in the final model. OR = Odds Ratio; CI = Confidence Interval

DISCUSSION

The present study determined the prevalence of NCDs among elders, based on self-report. That is why the prevalence of hypertension estimated in this study (8.5%) is much lower than those of previous studies and reports (range between 13.5% and 41.1%) done in Myanmar.^[10,11,17-20] Vellakkal and colleagues^[21] also concluded in their study that the prevalence of NCDs was significantly lesser if the diagnosis was based on self-report rather than standard procedures. However, self-reported prevalence of diabetes mellitus detected in this study (15.6%) is higher than those found in previous studies (range from 2% to 6%) conducted in Myanmar.^[10,17] This may be due to the difference in ages of participants. The respondents of this study were 60 years of age and older where as those of previous studies were between 15-64 years of age in one study^[10] and 25-64 in the other.^[17] Besides, the overall prevalence of NCDs estimated in the present study (24.8%) is higher than those determined in the similar studies done in India (about 19.0%)^[16,21] and Albania (22.8%).^[5] This may be due to the differences in socio-demographic characteristics and/or economic status and/or health status among study populations.

The prevalence of self-reported NCDs was higher among older age-group (i.e., ≥ 70 years old), females and those with low education status in the present study (Table 3). The same findings were also reported in the previous studies carried out in India^[13,16] and Albania.^[5] However, in this study the association between these variables and the presence of NCDs became disappeared in multivariate analysis (Table 4). This means that age, sex and education did not have any statistically significant relationship with the presence of NCDs when other potential confounders were controlled. This might be explained by the fact that the participants of this study were 60 years of age and older. A study done in South

Africa also reported that the prevalence of some NCDs such as hypertension did not reveal any significant difference between males and females.^[22] An Indian study found out that the prevalence of NCDs were higher in people of two extreme education groups; among those with no education and among those who were graduate and above.^[13] Practicing regular exercise was determined as a significant protective factor for the occurrence of NCDs in this study even if the potential confounders were adjusted. This finding highlights that the higher the level of practicing regular exercise, the less likely to have NCDs. This finding is supported by some WHO reports.^[1,2]

CONCLUSION

The prevalence of NCDs among elder population in Thanlyin Township is high. Prevention and control activities of NCDs as well as elderly health care program should be intensified in that township. Practicing regular exercise should also be promoted and strengthened among elder persons.

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