



Received on 06 January, 2017; received in revised form, 15 March, 2017; accepted, 22 March, 2017; published 01 August, 2017

## SELF-REPORTED CHRONIC ILLNESSES AND USE OF PRESCRIPTION MEDICINES (PM) AMONG ELDERLY MALAYS- A COMMUNITY BASED STUDY

B. K. Mohanty <sup>\*1</sup>, O. Ali <sup>2</sup>, S. Sugathan <sup>2</sup> and C. R. Giriappanavar <sup>1</sup>

Unit of Pharmacology <sup>1</sup>, Unit of Community Medicine <sup>2</sup>, Faculty of Medicine, University Kuala Lumpur Royal College of Medicine Perak (UniKL RCMP), No. 3 Jalan Greentown, 30450 Ipoh, Perak, Malaysia.

### Keywords:

Elderly Malays, Self-reported chronic illness, Prescription drugs

### Correspondence to Author:

**Dr. Basanta Kumar Mohanty**


Associate Professor,  
Unit of Pharmacology,  
Faculty of Medicine, University  
Kuala Lumpur Royal College of  
Medicine Perak (UniKL RCMP),  
No3 Jalan Greentown, 30450 Ipoh,  
Perak, Malaysia.

**E-mail:** basanta@unikl.edu.my

**ABSTRACT:** This study explored self-reported chronic illnesses and use of prescription medicines (PM) by elderly Malays in the community. The study was a population based cross sectional study conducted among 490 Malay subjects aged  $\geq 60$  years in the semi-urban and rural areas in Perak, Malaysia. The study was conducted using pre-validated questionnaires after getting informed consent from the study participants. Critically ill and subjects with cognitive impairment were excluded from the study. The mean age of the elderly respondents was 69.7 years and 68.4% of the elderly were females. Respondents belonging to the age group 60-69 years constituted the largest group (54.5%). The most common illness reported was hypertension (59.8%) followed by hypercholesterolemia (42.7%) and diabetes mellitus (32.2%). Other chronic illnesses were osteoarthritis (6.3%), bronchial asthma (4.1%), other cardiovascular diseases (2.2%) and other diseases (19.2%). 52.9% of elderly study subjects had multiple illnesses. 76.7% used at least one prescription medication. The highest users of PM were aged between 70-79 years, while the lowest users of PM were  $\geq 80$  years old ( $p < 0.05$ ). Female elderly used more medication (79.4%) compared to males (71%) and it was statistically significant. Urban elderly used more PM (79.1%) which was significantly different from their rural counterparts (67%). Anti-hypertensive drugs were the most commonly used medication (59.4%) followed by anti-cholesterol drugs (41.4%), anti-diabetics (30.2%), anti-osteoarthritis drugs (4.3%) and anti-asthma drugs (2.9%).

**INTRODUCTION:** There has been sharp increase in the elderly population worldwide <sup>1</sup> and it is expected to rise further in the next few decades due to the advances in medical technology, improved sanitation, better diet and socio-economic growth. It is estimated that in Malaysia, the population above 65 years of age, recorded in 2010, will increase more than 3 fold by 2040.

The increase will lead to Malaysia become an aging nation in 2021 when the population aged 65 years and over reaches 7.1 percent <sup>2</sup>. This trend has long been observed in countries such as China and Japan, as well as in Europe and the United States <sup>3</sup>. The physiological changes caused by the aging process make this population more vulnerable to chronic and complex medical conditions needing multiple-drug therapy <sup>4</sup>. About 32% of total prescription drugs in USA and 45% in UK are dispensed for the elderly <sup>5</sup>. The altered pharmacokinetics and pharmacodynamics due to ageing also may make this population more vulnerable to various types of adverse drug reactions and result in hospitalization.

|  |  |
|--|--|
| <b>QUICK RESPONSE CODE</b><br>                              | <b>DOI:</b><br>10.13040/IJPSR.0975-8232.8(8).3574-81                                   |
|  | Article can be accessed online on:<br><a href="http://www.ijpsr.com">www.ijpsr.com</a> |
| <b>DOI link:</b> <a href="http://dx.doi.org/10.13040/IJPSR.0975-8232.8(8).3574-81">http://dx.doi.org/10.13040/IJPSR.0975-8232.8(8).3574-81</a> |  |

Higher drug intake may also subject them to the problems of polypharmacy like drug-drug and drug-disease interactions, decreased compliance in prescribed drugs, increased iatrogenic illnesses leading to increased healthcare related costs<sup>6</sup>.

Several studies have been conducted on the utilization of drug by elderly in Europe, North America, Australia and other developed countries. However, there is lack of literature chronicling drug use and other healthcare related studies in the elderly population in developing countries including Malaysia<sup>6</sup>. Even though some studies are conducted on drug use by hospitalized elderly patients, there is paucity of data related to the study of illnesses and drug use in the community.

This study is aimed at determining the self-reported morbidity and pattern of prescription drug use in the elderly population aged 60 years and above in some urban and rural areas of Perak, Malaysia. The study will provide data on the prevailing illnesses and burden of drug usage in the study population which can prove useful in identifying healthcare related problems of the elderly and planning better treatment.

**MATERIALS AND METHODS:** This is a population-based cross-sectional study to investigate self-reported illnesses and use of prescription medicines by elderly Malays in the community. The study was conducted in selected urban areas in Ipoh and rural areas in Gopeng of Perak, Malaysia from October 2012 to October 2014. The data was collected by door-to-door surveys from 490 elderly Malays of both sexes aged 60 years and above, who were available at the time and were willing to take part in the study by trained medical students of UniKL RCMP. For collection of data, the study population was divided into three groups *i.e.* 60-69 years, 70-79 years and 80 years and above.

The sample size was calculated assuming that at least 50% of elderly Malay population uses prescription medication with an allowable error of 5%. Minimum sample size was calculated as 384, for 95% confidence level. Therefore the sample size of 490 was adequate enough for collection of data and analysis, assuming a non-respondent rate of 25%.

The number of elderly people in the particular area according to last census data of 2011 was obtained from the government authorities of the respective areas. The elderly subjects were interviewed by structured pre-validated questionnaires after obtaining their informed consent. The questionnaires administered and consent forms were both in English and Bahasa Malaysia for greater clarity of the subjects. The questions were open-ended and were answered based on the memory of the patients and by examining prescriptions and medicines from their medicine kit.

The subjects with cognitive impairment, and where it was difficult to administer questionnaires and those who refused consent were excluded from the study. Incomplete data was also excluded.

Self-reported chronic illnesses included hypertension, hypercholesterolemia, diabetes mellitus, respiratory diseases, cardiac diseases, arthritic diseases and other diseases listed in the questionnaire and reported by the subjects. The prescription medicines included the medicines prescribed by a doctor either from a government hospital or a private clinic. The prescription medicines were verified by examining the prescriptions wherever available and by examining their medicine kit. The drug names written in prescriptions were coded according to the Anatomical Therapeutic Chemical Classification (ATC) system<sup>7</sup>. The reported reasons for drug use were coded according to the International Classification for Primary Care (IPCC)<sup>8</sup>.

The study variables were socio-demographic characteristics like age, sex, residence, educational qualification. Other required variables were prescription medications and self-reported illnesses. The approval from the institutional ethical committee of UniKL RCMP was obtained prior to the study vide the letter dated 23<sup>rd</sup> March 2012. The data was analysed by Pearson Chi-square test using SPSS software version 17.

**RESULTS:** A total of 490 elderly subjects were interviewed. 335 were females and 155 were males. The age of the study population varied from 60 to 102 years with mean age of 69.7 years with SD 6.8.

The 155 males had a mean age of 70.0 ± 7.1 years and the 335 were females had a mean age of 69.6 ± 6.7 years. The age group belonging to 60-69 years constituted the largest group and 80 years and above population was the smallest.

Out of the 490 respondents, 393 belonged to urban areas and 97 belonged to rural areas. The highest percentage of the study population had primary-level education followed by people with secondary-level and people with no education. Only few had tertiary level education. The details of sociodemographic characteristics are depicted in **Table 1**.

**TABLE 1: SOCIO- DEMOGRAPHIC CHARACTERISTICS OF THE STUDY POPULATION**

| Characteristics        | Number(n=490) | Percentage (%) |
|------------------------|---------------|----------------|
| <b>Age</b>             |               |                |
| 60-69 years            | 267           | 54.5           |
| 70-79 years            | 178           | 36.3           |
| 80 years and above     | 45            | 9.2            |
| <b>Gender</b>          |               |                |
| Male                   | 155           | 31.6           |
| Female                 | 335           | 68.4           |
| <b>Education level</b> |               |                |
| No education           | 72            | 14.7           |
| Primary                | 297           | 60.6           |
| Secondary              | 111           | 22.7           |
| Tertiary               | 10            | 2.0            |
| <b>Residence</b>       |               |                |
| Urban                  | 393           | 80.2           |
| Rural                  | 97            | 19.8           |

The major chronic illnesses reported by the elderly respondents were hypertension, hypercholesterolemia and diabetes mellitus followed by arthritic diseases, respiratory illnesses. 52.9% of study population had multiple diseases. The details regarding self-reported morbidities are shown in **Table 2**.

**TABLE 2: SELF - REPORTED MORBIDITY PROFILE OF THE STUDY POPULATION (n=490)**

| Morbidity                        | Number | Percentage (%) |
|----------------------------------|--------|----------------|
| Hypertension (HTN)               | 293    | 59.8           |
| Diabetes mellitus (DM)           | 158    | 32.2           |
| Hypercholesterolemia (High Chol) | 209    | 42.7           |
| Arthritis (OA)                   | 31     | 6.3            |
| Bronchial asthma (BA)            | 20     | 4.1            |
| Cardiovascular Diseases (CVD)    | 11     | 2.2            |
| Other diseases                   | 94     | 19.2           |
| Multiple Diseases (MD)(>1)       | 259    | 52.9           |

Comorbidities were observed more in the age group of 60-69 years followed by 70-79 years except; arthritis which was more in the age group of 70-79 years. The age group 80 and above had less comorbidities compared to the other two groups. A significant difference was observed in the case of diabetes mellitus in this age group. Males had significantly higher percentage of diabetes mellitus and hypercholesterolemia compared to females as mentioned in **Table 3** below.

**TABLE 3: ASSOCIATION OF DEMOGRAPHY (AGE AND GENDER) WITH SELF-REPORTED MORBIDITY**

| Demography          | HTN    |      | DM                |      | High Chol |      | OA     |     | BA     |     | MD     |      |
|---------------------|--------|------|-------------------|------|-----------|------|--------|-----|--------|-----|--------|------|
|                     | No     | %    | No                | %    | No        | %    | No     | %   | No     | %   | No     | %    |
| <b>Age in years</b> |        |      |                   |      |           |      |        |     |        |     |        |      |
| 60-69               | 165    | 61.8 | 86                | 32.2 | 122       | 45.7 | 11     | 4.1 | 12     | 4.5 | 147    | 55.0 |
| 70-79               | 107    | 60.1 | 66                | 37.0 | 75        | 42.0 | 17     | 9.6 | 5      | 2.8 | 96     | 53.9 |
| ≥80                 | 21     | 46.7 | 6                 | 13.3 | 12        | 26.7 | 3      | 6.7 | 3      | 6.6 | 16     | 5.6  |
| Significance        | P>0.05 |      | <b>*P&lt;0.05</b> |      | P>0.05    |      | P>0.05 |     | P>0.05 |     | P>0.05 |      |
| <b>Gender</b>       |        |      |                   |      |           |      |        |     |        |     |        |      |
| Male                | 87     | 56.1 | 60                | 30.7 | 69        | 44.5 | 8      | 5.2 | 9      | 5.8 | 85     | 54.8 |
| Female              | 206    | 61.1 | 98                | 29.3 | 140       | 41.8 | 23     | 6.9 | 11     | 3.3 | 174    | 51.9 |
| Significance        | P>0.05 |      | <b>*P&lt;0.05</b> |      | P>0.05    |      | P>0.05 |     | P>0.05 |     | P>0.05 |      |

\*P<0.05 is significant

It is highlighted in **Table 4** below that higher percentage of use of medication was observed in the age group of 70-79 years in comparison to 60-69 years and 80 years above age group. Significantly less use of medication was observed

in the age group of 80 and above. Similarly, significantly higher use of medication was observed in case of females compared to males and in urban elderly compared to their rural counterparts.

**TABLE 4: ASSOCIATION OF SOCIO-DEMOGRAPHIC CHARACTERISTICS WITH USE OF MEDICATION**

| Demographic variables | Use of Medication |                | P Value |
|-----------------------|-------------------|----------------|---------|
|                       | Number            | Percentage (%) |         |
| <b>Age in years</b>   |                   |                |         |
| 60-69                 | 206               | 77.2           | *P<0.05 |
| 70-79                 | 142               | 79.8           |         |
| ≥80                   | 28                | 62.8           |         |
| <b>Gender</b>         |                   |                |         |
| Male                  | 110               | 71.0           | *P<0.05 |
| Female                | 266               | 79.4           |         |
| <b>Education</b>      |                   |                |         |
| No education          | 58                | 80.6           | P>0.05  |
| Primary education     | 224               | 75.4           |         |
| Secondary education   | 85                | 76.6           |         |
| Tertiary education    | 09                | 90.0           |         |
| <b>Residence</b>      |                   |                |         |
| Urban                 | 311               | 79.1           | *P<0.05 |
| Rural                 | 65                | 67.0           |         |

\*P<0.05 is significant

Elderly respondents belonging to the age group of 80-and-above consumed significantly less anti-diabetic medication in comparison to other two groups. Use of anti-arthritic drugs was significantly high in females than male elderly respondents.

Anti-diabetic medication use was significantly higher in people with tertiary-level education in comparison to the elderly with no education, with primary education and with secondary education, which can be referred below in **Table 5**.

**TABLE 5: ASSOCIATION OF DEMOGRAPHY WITH USE OF DIFFERENT CLASS OF PRESCRIPTION DRUGS**

| Demographic variables | Different class of Prescription Drugs |      |         |      |                  |      |         |     |         |      |
|-----------------------|---------------------------------------|------|---------|------|------------------|------|---------|-----|---------|------|
|                       | Anti-HTN                              |      | Anti-DM |      | Anti-Cholesterol |      | Anti OA |     | Anti BA |      |
|                       | No                                    | %    | No      | %    | No               | %    | No      | %   | No      | %    |
| <b>Age in years</b>   |                                       |      |         |      |                  |      |         |     |         |      |
| 60-69                 | 163                                   | 61.0 | 83      | 31.3 | 118              | 44.2 | 09      | 3.4 | 10      | 3.7  |
| 70-79                 | 107                                   | 60.1 | 59      | 33.1 | 73               | 41.0 | 10      | 5.6 | 03      | 1.7  |
| ≥80                   | 21                                    | 46.7 | 06      | 13.3 | 12               | 26.7 | 02      | 4.4 | 01      | 2.2  |
| Significance          | P>0.05                                |      | *P<0.05 |      | P>0.05           |      | P>0.05  |     | P>0.05  |      |
| <b>Gender</b>         |                                       |      |         |      |                  |      |         |     |         |      |
| Male                  | 87                                    | 56.1 | 53      | 34.2 | 64               | 41.3 | 02      | 1.3 | 05      | 3.2  |
| Female                | 204                                   | 60.9 | 95      | 28.4 | 139              | 41.5 | 19      | 5.7 | 09      | 2.7  |
| Significance          | P>0.05                                |      | P>0.05  |      | P>0.05           |      | *P<0.05 |     | P>0.05  |      |
| <b>Education</b>      |                                       |      |         |      |                  |      |         |     |         |      |
| No education          | 42                                    | 58.3 | 18      | 25.0 | 26               | 36.1 | 05      | 6.9 | 01      | 1.4  |
| Primary               | 182                                   | 61.3 | 87      | 29.3 | 125              | 42.1 | 10      | 3.4 | 11      | 3.7  |
| Secondary             | 59                                    | 53.2 | 36      | 32.4 | 45               | 40.5 | 06      | 5.4 | 01      | 0.9  |
| Tertiary              | 08                                    | 80.0 | 07      | 70.0 | 07               | 70.0 | 0       | 0.0 | 01      | 10.0 |
| Significance          | P>0.05                                |      | *P<0.05 |      | P>0.05           |      | P>0.05  |     | P>0.05  |      |
| <b>Residence</b>      |                                       |      |         |      |                  |      |         |     |         |      |
| Urban                 | 240                                   | 61.1 | 126     | 32.1 | 168              | 42.7 | 19      | 4.8 | 11      | 2.8  |
| Rural                 | 51                                    | 52.6 | 22      | 22.7 | 35               | 36.1 | 02      | 2.1 | 03      | 3.1  |
| Significance          | P>0.05                                |      | P>0.05  |      | P>0.05           |      | P>0.05  |     | P>0.05  |      |

\*P<0.05 is significant

The highest percentage of elderly used antihypertensive drugs. It was observed that ACEI was used by more number of elderly either alone or in combination, followed by CCBs, beta-blockers and diuretics. Single antihypertensive was used by 144 elderly respondents. The second highest group was users of cholesterol lowering drugs mostly a

statin. The third group was the users of anti-diabetic medication– metformin was the most used either alone or in combination, followed by sulfonylureas. Alpha-glucosidase inhibitor was used only in combination with other two drugs. Eight elderly respondents used insulin.

A single anti-diabetic drug was used by 90 elderly individuals. The details regarding the use of various drugs from different classes can be referred from **Table 6**.

**TABLE 6: PERCENTAGE OF INDIVIDUAL DRUG USED FROM DIFFERENT CLASS**

| Medication used              | Number used | Percentage (%) used |
|------------------------------|-------------|---------------------|
| Over all medication used     | 376         | 76.6                |
| Antihypertensive drugs       | 291         | 59.4                |
| ACEI                         | 148         | 51.0                |
| CCBs                         | 125         | 43.5                |
| Beta-blockers                | 109         | 37.9                |
| Diuretics                    | 87          | 30.3                |
| Single antihypertensive      | 144         | 50.1                |
| Antidiabetic drugs           | 148         | 30.2                |
| Metformin                    | 112         | 75.6                |
| Sulfonyl urea                | 83          | 56.0                |
| Alpha-glucosidase inhibitor  | 07          | 4.7                 |
| Insulin                      | 08          | 5.4                 |
| Single antidiabetic          | 90          | 61.8                |
| Anti-cholesterol drugs       | 203         | 41.4                |
| Statin                       | 200         | 98.5                |
| Fibrate                      | 11          | 5.4                 |
| Single anti-cholesterol drug | 200         | 98.5                |
| Anti OA drugs                | 21          | 4.3                 |
| Anti- bronchial asthma drugs | 14          | 2.9                 |

It is to be noted that there was discrepancy between the numbers of elderly people studied who have reported illnesses and the number that actually consumed prescription drugs. It was observed that 293 elderly subjects reported hypertension whereas 291 were taking anti-hypertensive drugs. Similarly 158 and 209 elderly subjects reported diabetes and hypercholesterolemia respectively but only 148 were taking anti-diabetic medication and 203 were taking anti-cholesterol drugs. A similar trend was also observed with arthritis and bronchial asthma as shown in **Table 3** and **Table 6**.

**DISCUSSION:** This study showed the preponderance of the chronic diseases like hypertension, hypercholesterolemia, and diabetes mellitus followed by arthritis and bronchial asthma in the elderly population. Hypertension, hypercholesterolemia, bronchial asthma and multiple diseases were observed more in the age group of 60 - 69 years. Diabetes mellitus and arthritis were observed more in the age group of 70 - 79 years. Comorbidities were less in the age group of 80 - and-above. This showed that the number of chronic illnesses reduced with

increasing age and this corresponded to the conclusions of other studies<sup>9, 10</sup>. This may be due to the fact that the healthier people live longer or that the group represents the survivors of the eldest group.

The study revealed that 52.9% of the study population had multiple (>1) chronic diseases correlating the data of Third National Health and Morbidity Survey (NHMS III)<sup>11</sup>. This also corresponded to other studies where it was observed that 52% of the elderly had multiple chronic illnesses<sup>12</sup>.

In this study, the prevalence of hypertension was more in all age groups (59.8%) which also corresponded to earlier studies done in Singapore<sup>13</sup> and Nigeria<sup>14</sup>. This was also in consistence with a recent study done by another group in Malaysia<sup>15</sup>. According to NHMS 2011<sup>16</sup>, prevalence of hypertension in the age group of 75 years and above in Perak state was 42% whereas in this study it was 60.1% in the age group of 70-79 years and 61.8% in the age group of 60-69 years.

Diabetes mellitus was observed in 32.2% in the study population in comparison to 11.3% reported by Sherina Mohd Sidik *et al.*, in Sepang, Selangor<sup>17</sup> and 20% reported by another group from India<sup>18</sup>. According to NHMS 2011, diabetes mellitus in 65-69 years age group in Malaysia was 36.6% and according to our study it was 32.2% in 60-69 years group and 37% in the age group of 70-79 years. The other major chronic illness reported by our study population was hypercholesterolemia (42.7%). NHMS 2011 reported prevalence of hypercholesterolemia in 57.2% in the age group of 65-69 years in Malaysia. According to our study, hypercholesterolemia in the age group of 60-69 years was 45.7% and in the age group of 70-79 years was 42%. Arthritic diseases and respiratory diseases were reported by a smaller percentage of the study population *i.e.* 6.3% and 4.1% respectively compared to other studies done by Sahar S. *et al.*,<sup>12</sup> where arthritic diseases was 45.0% and respiratory illness was 15.1%.

This study also correlated gender with comorbidities. The female study population reported more (68.4%) compared to their male counterparts (31.6%) which corresponded to

another study done by Sherina Mohd Sidik, *et al.* in Sepang, Selangor<sup>17</sup>. This may be due to comparatively higher longevity in females. According to the annual report of the Ministry of Health, Malaysia 2011<sup>19</sup>, the average life expectancy for males is 71.97 years and for females is 77.05 years. Prevalence of hypertension was more among females than males. This corresponded to the data from the National Health and Nutrition Examination Survey (NHANES) 1999-2000 from the US and Heart Health Survey from Canada<sup>20</sup> and another study from Malaysia by Latiffah, A.L. *et al.*,<sup>9</sup>.

In the present study 76.7% elderly reported use of at least one medication which was lower than another study done by J Y Hor in 2008 (82.4%) in Malaysia and higher than the studies reported in Hong Kong, USA, Sweden and Australia and lower than the study reported in Italy<sup>6</sup>.

The use of medication was more in the age group of 70-79 years which was 79.8% compared to 77.2% in 60-69 years and 62.8% in 80 years and above. The use of medication in the age group of 80 years and above was significantly lower than the other two groups. This corresponded to a study by Kotzan, *et al.*, in the USA<sup>21</sup>. Our findings were different from most of the studies where the drug use increased with an increase in age. One plausible explanation for this could be that the life expectancy in Malaysia is 70-plus years and those who live beyond this age are generally healthier<sup>19</sup>. In the present study, the use of medication was significantly more in elderly females than elderly males. This correlated to other studies done in Brazil<sup>3</sup> and USA<sup>22</sup>.

The present study depicted that majority of the study population had primary level of education whereas another study<sup>17</sup> reported that most of the respondents had received no education.

Overall medication use was significantly higher in urban population than their rural counterparts. However, in our study the sample size was less from rural population compared to urban elderly. In this study, antihypertensive drugs were the most commonly used prescription drugs (58.6%) which corroborates the findings of Rahul Malhotra, *et al.*,<sup>13</sup>.

In the antihypertensive group, the most frequently used drug was angiotensin converting enzyme inhibitors (ACEIs) either alone or in combination, followed by calcium channel blockers (CCBs), Beta blockers and diuretics. Other studies from India<sup>23</sup> and Singapore<sup>24</sup> have revealed that CCBs were the most frequently used drugs in elderly population.

In our study anti-diabetic drugs were used in 30.2% of study population where as it was 40% reported in another study<sup>6</sup>. Most commonly used anti-diabetic drug was metformin either alone or in combination (75.6%), followed by sulfonylureas (56.0%). In another study<sup>25</sup> in India it was observed that metformin was used as monotherapy in 30% of geriatric population and the sulfonyl urea in 70.6% of geriatric population which could be due to more number of lean/lower BMI elderly patients.

The next group of drugs frequently prescribed were cholesterol lowering agents among which statins were prescribed in 98.5% of cases. This correlates with Indian studies where atorvastatin was frequently used as cholesterol lowering drug<sup>23</sup>.

Another point that is worth noting here is the discrepancy between the number of elderly people reporting illness and actual number using different medications. It was observed that even though 59.8% elderly reported hypertension, 59.4% were taking antihypertensive drugs which means that 2 people were not using any antihypertensive drugs. A similar discrepancy was observed with the number of elderly reporting hypercholesterolemia, diabetes, arthritis and bronchial asthma and actual number of elderly taking the respective medications. 32.2% of the elderly reported diabetes but only 30.2% were taking antidiabetic drugs. 42.7% of the elderly reported hypercholesterolemia but 41.4% were taking drugs.

Arthritis was reported by 6.3% but 4.3% were using anti-arthritic medication. Bronchial asthma was reported by 4.1% and 2.9% were taking drugs. This discrepancy was due to the fact that these elderly were using traditional and complementary medications only instead of conventional prescription medicines.

**LIMITATIONS OF THE STUDY:** This study was conducted in a sample geriatric population in the selected urban and rural areas in Perak, Malaysia which may not be true reflection of geriatric population in Malaysia and further large scale studies in community settings are required to confirm the findings of this study.

**CONCLUSION:** We conclude that the prevalence of chronic illnesses like hypertension, diabetes and hypercholesterolemia is high in elderly Malays particularly the 'young-old' group *i.e.* 60-69 years and that the majority of them are using prescription medications. Therefore, research on the prevalence of chronic illnesses and use of drugs by the elderly population is essential for planning and development of healthcare services for the elderly. The findings of this research can also be used to educate the society and particularly younger generations to adopt a healthy lifestyle to prevent chronic illnesses like hypertension, diabetes and chronic kidney diseases from occurring in old age. The pattern of morbidity among elderly is also important for doctors and healthcare professionals for better management of elderly patients because they belong to a separate group and differ in many aspects from young individuals.

**ACKNOWLEDGEMENT:** The authors would like to thank the management of University Kuala Lumpur Royal college of Medicine Perak (UniKL RCMP) for funding this research project. We are also thankful to the Dean, Prof Osman Ali for his support and guidance.

**CONFLICT OF INTERESTS:** This study was funded by Short Term Research Grant (STRG) of University Kuala Lumpur Royal College of Medicine Perak, Ipoh, Malaysia. The author(s) declare no potential conflict of interest with respect to the research, authorship, and/or publication of this article.

## REFERENCES:

1. World population aging. [http://www.un.org/en/development/desa/population/publications/pdf/ageing/WPA2015\\_Report.pdf](http://www.un.org/en/development/desa/population/publications/pdf/ageing/WPA2015_Report.pdf). Accessed March 10, 2017.
2. Mukmin Abdullah Sukri, Fatin Wafaa' Mohd Sohimi, Nangkula Utaberta, Mohd Yazid Mohd Yunos, Nor Atiah Ismail, Sumarni Ismail., The Development of Retirement Center in Malaysia: Lesson from Japan. *Adv. Environ. Biol.* 2015; 9(5): 384-389.

3. Torres Faggiani F *et al.*, Profile of drug utilization in the elderly living in Porto Alegre, Brazil. *Pharmacy Practice* 2007; 5(4):179-184.
4. Haugsgjerd, T.R., Dierkes, J., Vollset, S.E. *et al.*, Association between weight change and mortality in community living older people followed for up to 14 years. The Hordaland Health Study (HUSK). *J Nutr Health Aging* 2016; 1-9.
5. Guaraldo *et al.*, Inappropriate medication use among the elderly: a systematic review of administrative databases. *BMC Geriatrics* 2011, 11:79.
6. Karuppanan M, Nee TK, Ali SM, Thong WK, Boardman H. The prevalence of adverse drug event-related admissions at a local hospital in Malaysia. *Arch Pharma Pract* 2013;4:160-7.
7. WHO Collaborating Centre for Drug Statistics Methodology, Guidelines for ATC classification and DDD assignment 2013. Oslo, 2012.
8. Rahman SMF, Angeline RP, Cynthia S, *et al.*, International Classification of Primary Care: An Indian Experience. *Journal of Family Medicine and Primary Care.* 2014;3(4):362-367
9. Latiffah A.L, Nor Afiah MZ, Nor Amalina E, Shukor AMN, and Jalal HK. Prevalence of Diseases Among Elderly Admitted to a Tertiary Hospital in Malaysia 2002. *Int. Med J* 2006; 5(1): 1-13.
10. Margolis SA, Carter T, Dunn EV, Reed RL. The health status of community based elderly in the United Arab Emirates. *Arch. Gerontol. Geriatr* 2003; 37: 1-12
11. Institute for Public Health. The Third National Health and Morbidity Survey 2006: Load of Illness. <http://www.iku.gov.my/images/IKU/Document/REPORT/2006/LoadOfIllness.pdf>. Accessed January 9, 2017.
12. Islam MM, Valderas JM, Yen L, Dawda P, Jowsey T, McRae IS. Multimorbidity and Comorbidity of Chronic Diseases among the Senior Australians: Prevalence and Patterns. Laks J, ed. *PLoS ONE.* 2014; 9(1):
13. Rahul Malhotra, Angeliqne Chan, Chetna Malhotra, Truls Ostbye. Prevalence, awareness, treatment and control of hypertension in the elderly population of Singapore. *Hypertension Research* 2010; 33:1223-1231.
14. Joseph O Fadare, Segun Matthew Agboola, Olumide Augustine Opeke, Rachel A Alabi. Prescription pattern and prevalence of potentially inappropriate medications among elderly patients in Nigerian rural tertiary hospital. *Therapeutics and Clinical Risk Management* 2013; 9:115-120.
15. Sandheep Sugathan, Davinder Singh Bagher Singh, Nur Aishah Binti Hasni. Reported prevalence and risk factors of chronic non-communicable diseases among inmates of old-age homes in Ipoh, Malaysia. *IJPTM* 2014; 2(4): 15-20
16. Institute for Public Health. National Health and Morbidity Survey 2011: Volume II Non Communicable Diseases. <http://www.iku.gov.my/images/IKU/Document/REPORT/NHMS2011-VolumeII.pdf>. Accessed January 9, 2017.
17. Sherina Mohd Sidik, Lekhraj Rampal, Mustaqim Afifi. Physical and mental health problems of the elderly in a rural community of Sepang, Selangor. *Malaysian Journal of Medical Sciences* 2004; 11 (1): 52-59.
18. Balaji V, Sathisha Aithal, Geetha S, Swetha ES. Drug utilization pattern among geriatric patients admitted in medical intensive care unit of a tertiary care teaching hospital. *Asian J Pharm Clin Res* 2015; 8(2): 281-283.
19. Ministry of Health, Malaysia. Annual Report 2011. [http://www.moh.gov.my/images/gallery/publications/md/ar/2011\\_en.pdf](http://www.moh.gov.my/images/gallery/publications/md/ar/2011_en.pdf). Accessed January 9, 2017.

20. Kearney, Patricia M *et al.*, Worldwide prevalence of hypertension: a systematic review. *Journal of Hypertension* 2004; 22(1): 11-19.
21. Kotzan L, Carrol NV, Kotzan JA. Influence of age, sex, and race on prescription drug use among Georgia Medicaid recipients. *Am J Hosp Pharm* 1989; 46:287-90.
22. Kaufman DW *et al.*, Recent patterns of medication use in the ambulatory adult population of the United States- the Slone Survey. *JAMA* 2002; 287(3):337-44
23. Shah RB, Gajjar BM, Desai SV. Drug utilization pattern among geriatric patients assessed with the anatomical therapeutic chemical classification/defined daily dose system in a rural tertiary care teaching hospital. *Int J Nutr Pharmacol Neurol Dis* 2012; 2:258-265.
24. Lim KK, Sivasampu S, Khoo EM. Antihypertensive drugs for elderly patients: a cross- sectional study. *Singapore Medical Journal*. 2015; 56(5):291-297.
25. Rajeswari S, Prabha Adhikari MR, Sashidharan Kotian. Comparison of use of antidiabetic agents among geriatric and nongeriatric population. *Pharmacology online* 2011; 3: 299-304.

**How to cite this article:**

Mohanty BK, Ali O, Sugathan S and Giriyananavar CR: Self-reported chronic illnesses and use of prescription medicines (PM) among elderly malays- a community based study. *Int J Pharm Sci Res* 2017; 8(8): 3574-81. doi: 10.13040/IJPSR.0975-8232.8(8).3574-81.

All © 2013 are reserved by International Journal of Pharmaceutical Sciences and Research. This Journal licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License.

This article can be downloaded to **ANDROID OS** based mobile. Scan QR Code using Code/Bar Scanner from your mobile. (Scanners are available on Google Playstore)