Determinants of Healthcare Utilization among Senior Citizens in Davao City, Philippines

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ABSTRACT

As the number of senior citizens increases, issues regarding their utilization for healthcare services are becoming highly relevant to discuss. This study aims to evaluate the potential determinants of healthcare utilization among senior citizens in Davao City, Philippines. Stratified sampling with proportional allocation was employed to select the 2,952 respondents. Data were collected using questionnaires. Of the total sample, 61.0% consumed cigarettes at most two times per week, 70.0% drank alcohol two to three times per week, and 78.3% performed an exercise at most one time per week. Approximately 59.0% reported experiencing two to three symptoms of a disease; however, 56.3% of the respondents utilized healthcare services at most four times for the past six months.

Most of the respondents were unaware that they automatically receive PhilHealth coverage in accredited healthcare facilities in the Philippines. Multiple regression analysis revealed that age, sex, family size, monthly income, geographical area, lifestyle factors, and awareness on health insurance were significant determinants of healthcare utilization. The findings revealed the impact of socio-demographic, lifestyle, and health insurance awareness on healthcare utilization among senior citizens. Policymakers and local government unit may consider improving the capability for senior citizens to access health services, such as providing health insurance awareness programs and developing health-promoting activities.

INTRODUCTION

A significant demographic shift towards the senior population has been observed in societies worldwide. Based on the Global Health and Aging Report showed by the World Health Organization (WHO), senior citizens' number is projected to grow from an estimated 524 million in 2010 to nearly 1.5 billion in 2050 (Suzman & Beard, 2011). In the Philippines, the population of senior citizens constituted eight million in 2018 (Philippine Statistics Authority, 2019). The elderly Filipino populace is burgeoning: 6.0% in 2000, 6.8% in 2010 and 8.2% in 2018.

As the number of elderly in the world continues to increase, the need for current and extensive information on this population surges, and thus, issues regarding their utilization for healthcare services are becoming highly relevant to discuss. With their declining physical function and increased morbidity from various diseases, the demand for healthcare services among senior citizens is far higher compared to other age groups(Acharya, Ghimire, Jeffers, & Shrestha, 2019). For instance, the rates of healthcare demand by senior citizens are growing in Asian and American countries. Annually, there are 6.1 visits, more hospital admissions, and a longer length of stay by the elderly in Malaysia. Moreover, approximately 40% of the total healthcare expenditure is utilized by the elderly, which amounted to 9.32 billion a year (MOH, 2013). In Canada, seniors accounted for 46% of the national public healthcare expenditures (Canadian Institute for Health Information, 2016). In the United States, three-fourths of the total health care costs are related to the treatment of chronic conditions of the seniors (Hazra, Rudisill, &Gulliford, 2018). In the same vein, Nepal is

experiencing epidemiological, as well as demographic transitions (Shrestha, 2013).Most Southeast and East Asian countriesreported high demand for long-term care with older adults(Yeung,& Thang,2018). In the Philippines, healthcare services are focused on the management of cardiovascular diseases such as rheumatic heart disease (Tolentino, & Margallo, 2019) as these diseases are the leading cause of deaths among senior citizens.

The burden of chronic diseases in the aging population is increasing, implying higher healthcare needs and effective healthcare services delivery for years to come (Zhu, Cai, Wang, & Liu, 2014). Hence, there is a growing concern globally of the need to assess how healthcare services are used, and how healthcare management might be best improved to meet the needs of the elderly population (Acharya et al., 2019).

Healthcare utilization means the use of services to obtain information about one's health, prevent and cure health conditions, and maintain health and well-being. Previous theoretical models of healthcare utilization have been studied, examining which variables influence it and to what extent (Hulka, & Wheat, 1985). For example, Berki and Kobashigawa (1976) explored the impact of individual characteristics and socio-economic factors on healthcare utilization, while Mutchler and Burr(1991) explained the racial differences in healthcare utilization among vulnerable populations. Miquel et al. (2016) focused on the influence of lifestyle (e.g., alcohol use, smoking) on healthcare utilization.

In the Philippines, the Republic Act 9994 or Expanded Senior Citizens Act of 2010 is implemented to support the senior citizens' immense demand for goods and services, especially in healthcare. The act states that the elderly Filipinos aged 60 and above are privileged to a 20% discount and exempted from the value-added tax on applicable goods and services for their exclusive use. In Davao City, the 'Pagkalinga Program' of the government is instigated to help the senior citizens cope with their maintenance medicines and other medical needs. Despite the various policy efforts of the government to address the demands of the elderly, the factors prompting senior citizens to utilize healthcare services were still overlooked. Uncovering the factors related to healthcare use is essential, mainly when used concurrently with conventional care, as this could avoid potential problems.

Given the escalation of healthcare costs for the elderly, population aging has become a concern to healthcare professionals, policymakers, and researchers. However, in the Philippines, particularly in Davao City, research on healthcare demands of the elderly is few and far between. Given this phenomenon, the study is proposed to investigate the determinants of the healthcare demands of

the senior citizens in Davao City. The study aims to bridge the gap in healthcare demands literature concerning the older people as the unit of analysis, by understanding the factors that lead to the utilization of healthcare facilities of senior citizens.

FRAMEWORK

Figure 1 shows the schematic diagram of this research study. The framework was summed up by presenting the independent and dependent variables to attain the objectives of this study in forecasting the probability of healthcare utilization of the senior citizens. The socio-demographic profile, lifestyle, morbidity count, and healthcare insurance awareness served as the independent variables of the study. The socio-demographic profile sought to elicit data on age, sex, ethnicity, marital status, family size, educational attainment, monthly income, and the geographical area of barangay, and the lifestyle consisted of cigarette consumption, alcohol drinking frequency, and performing exercise frequency. The dependent variable in this study was the healthcare utilization in terms of the total number of healthcare visits for the past six months.

Independent Variable   **Dependent Variable**

Socio-Demographic Profile
1. Age
2. Sex
3. Ethnicity
4. Marital status
5. Family size
6. Educational attainment
7. Monthly income
8. Geographical area of barangay

Healthcare Utilization
1. Total number of healthcare visits for the past six months

Lifestyle
1. Cigarette consumption
2. Alcohol drinking frequency
3. Performing exercise frequency

Morbidity Count
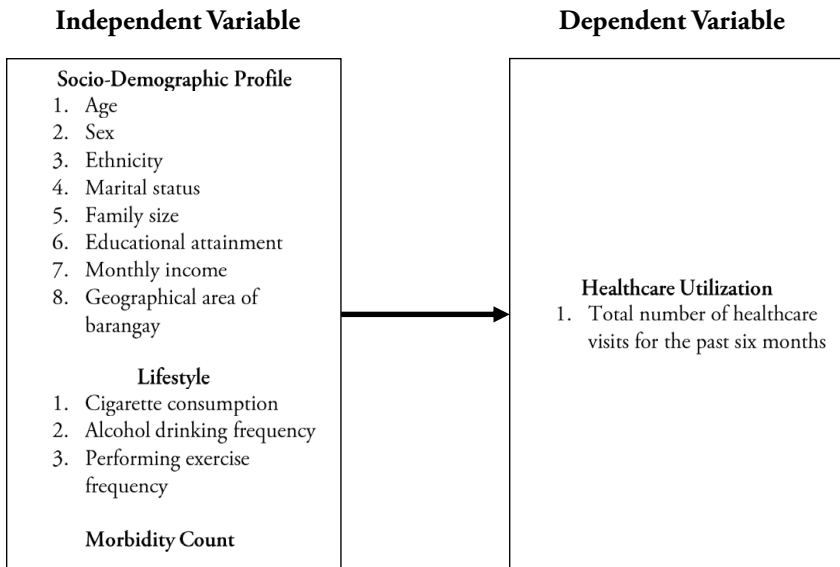
Figure 1. Schematic Diagram Employed in the Study

OBJECTIVES OF THE STUDY

The thrust of this study is to know the determinants of healthcare utilization among senior citizens in Davao City. Specifically, it tried to answer the following objectives: (1) to determine the demographic profile of the senior citizens; (2) to determine the lifestyle of the senior citizens; (3) to determine the morbidity count of the senior citizens; (4) to determine the healthcare insurance awareness of the senior citizens; (5) to determine the healthcare utilization of the senior citizens; and (6) to determine if the socio-demographic profile, lifestyle, morbidity count, and healthcare insurance membership of the senior citizens significantly predict their healthcare utilization.

METHODOLOGY

Research Design
The present study utilized the descriptive-predictive design to test the claim of this study. It is descriptive-predictive in purpose as it focused on the identification of significant predictors of healthcare utilization among senior citizens in Davao City.

Research Site and Participants
This study was conducted in the 182 barangays of Davao City. The respondents of the survey were the 2,592 senior citizens who were chosen through stratified sampling using proportional allocation. This sample size was calculated using Raosoft Sample Size Calculator with a 99% confidence level at 2.5% margin of error. The total population size and population size per barangay stratum in Davao City were taken from the 2015 Census of Population and Housing by the Philippine Statistics Authority.

Instrumentation
This study employed a researcher-made questionnaire, which is composed of five parts. The first part gathered information about the socio-demographic profile of the respondents, namely, the age, sex, ethnicity, marital status, family size, educational attainment, monthly income, and geographical area of barangay. The second part sought to know the lifestyle of the respondents, namely, cigarette consumption, alcohol use, and physical activity. The third part gathered information about the morbidity count of the respondents. The fourth

part sought to determine the level of awareness of the respondents on healthcare insurance of the government. The fifth part gathered information about the healthcare utilization of the respondents in terms of the total number of healthcare visits for the past six months. The total number of healthcare visits for the past six months was calculated based on the sum of the number of inpatient visits, the number of outpatient visits, and the number of emergency department visits. The researchers did not conduct reliability testing because the tool did not contain any scale-type items.

Before the administration of the questionnaire, written informed consent was obtained from the respondents. After securing the approval, the enumerators administered the questionnaire to the respondents. After retrieving the surveys, the responses were tabulated, analyzed, and interpreted using the appropriate statistical tools. For descriptive problems concerning the socio-demographic profile, lifestyle, morbidity count, and level of awareness, frequency, and percentage were used. Multiple regression analysis was used to determine if the socio-demographic profile, lifestyle, morbidity count, and healthcare insurance awareness predict the healthcare utilization of the respondents. A p-value of less than 0.05 was considered significant.

RESULTS AND DISCUSSION

The present study focused on the determination of healthcare utilization of the senior citizens in Davao City and the factors affecting the demand of healthcare among the senior citizens in Davao City.

Table 1 shows the socio-demographic profile of the respondents. Out of the 2,592 respondents, 31.3% belong to the age group 68-71, 24.0% belong to the age group 72-75, 17.0% belong to the age group 60-63, 15.0% belong to the age group 64-67, 10.3% belong to age group 76-79, and 2.4% belong to the age group 80-83. In terms of sex, there are more male respondents (52.3%) compared to female respondents (47.7%). In terms of ethnicity, most of the respondents are Cebuano (35.0%), 27.0% are Bisaya, 17.0% are Dabawenyo, 8.7% are Boholanos, 6.7% are Hiligaynon, and the remaining 5.7% belong to other ethnic groups. In the marital status area, there are more married respondents (53.3%) than either single or widow respondents (46.7%).

In terms of family size, 59.3% of the respondents live with a family of 3-4, 27.7% live with a family of 7-8, while 13.0% reside with a family of 5-6. In the educational attainment domain, most of the respondents did not attend formal

education (51.0%), while the remaining 49.0% attended formal education. In terms of monthly income in thousands, 48.7% of the respondents earn 4,201-5,600, 41.7% earn 2,801-4,200, 9.6% earn 0-1,400, and none earns 1,401-2,800. In the dimension of geographical area, most of the respondents reside in the urban barangay (71.7%), while the least number of respondents reside in the rural barangay (28.3%).

Table 1. Socio-demographic Profile of the Respondents

Profile	f	%
Age		
60-63	441	17.0%
64-67	389	15.0%
68-71	811	31.3%
72-75	622	24.0%
76-79	268	10.3%
80-83	61	2.4%
Sex		
Male	1,355	52.3%
Female	1,237	47.7%
Ethnicity		
Cebuano	907	35.0%
Bisaya	699	27.0%
Dabawenyo	441	17.0%
Boholano	225	8.7%
Hiligaynon	173	6.7%
Others	147	5.7%
Marital Status		
Married	1,381	53.3%
Single/Widow	1,211	46.7%
Family Size		
3-4	1,537	59.3%
5-6	337	13.0%
7-8	718	27.7%
Total	2,592	100.0%

Educational Attainment		
Not Attended Formal Education	1,322	51.0%
Attended Formal Education	1,270	49.0%
Monthly Income		
0-1,400	250	9.6%
1,401-2,800	0	0.0%
2,801-4,200	1,080	41.7%
4,201-5,600	1,262	48.7%
Geographical Area of Barangay		
Rural	734	28.3%
Urban	1,858	71.7%
Total	2,592	100.0%

Table 2 shows the lifestyle of the respondents in terms of cigarette consumption, alcohol drinking frequency, and performing exercise frequency per week. Among the surveyed respondents, 61.0% of the respondents consumed 0-2 cigarettes weekly, 16.3% consumed 3-5, 10.7% consumed 6-8, another 10.7% consumed 9-11, and the remaining 1.3% consumed 12-14. In terms of alcohol drinking frequency per week, 70.0% of the respondents drank alcohol 2-3 times, 27.3% drank 0-1 time, and 2.7% drank 4-5 times. In the area of performing exercise frequency per week, 78.3% of the respondents performed exercise 0-1 time, 15.0% performed 4-5 times, and 6.7% performed 2-3 times.

Table 2. Lifestyle of the Respondents

Lifestyle	f	%
Cigarette Consumption (Weekly)		
0-2	1,581	61.0%
3-5	423	16.3%
6-8	277	10.7%
9-11	277	10.7%
12-14	34	1.3%
Alcohol Drinking Frequency (Weekly)		
0-1	708	27.3%
2-3	1,814	70.0%
4-5	70	2.7%

Performing Exercise Frequency (Weekly)		
0-1	2,029	78.3%
2-3	174	6.7%
4-5	389	15.0%
Total	2,592	100.0%

The morbidity count of the respondents is shown in Table 3. It can be gleaned that most of the respondents (59.0%) had 2-3 symptoms of a disease, while the remaining 41.0% of the respondents reported they had only 0-1 symptoms of a disease.

Table 3. Morbidity Count of the Respondents

Morbidity Count	f	%
0-1	1,063	41.0%
2-3	1,529	59.0%
Total	2,592	100.0%

Table 4 shows the awareness of the respondents on healthcare insurance of the government. When asked about their awareness of PhilHealth coverage, most of the respondents (79.7%) were not aware that they automatically receive PhilHealth coverage in accredited healthcare facilities in the Philippines, while the remaining 20.3% were aware of this privilege.

Table 4. Awareness of the Respondents on Healthcare Insurance of the Government

Awareness	f	%
Aware	526	20.3%
Not Aware	2,066	79.7%
Total	2,592	100.0%

The healthcare utilization of the respondents for the past six months is shown in Table 5. Majority of the respondents (56.3%) visited the hospital 0-4 time/s for the past six months, 16.7% visited 10-14 times, 15.3% visited 5-9 times, and 11.7% visited 15-19 times.

Table 5. Healthcare Utilization of the Respondents for the Past Six Months

Number of Healthcare Visit	f	%
0-4	1,459	56.3%
5-9	397	15.3%
10-14	433	16.7%
15-19	303	11.7%
Total	2,592	100.0%

Table 6 shows the unstandardized coefficients of the different determinants via the multiple regression analysis. Overall, age, sex, family size, monthly income, geographical area, cigarette consumption, alcohol drinking frequency, performing exercise frequency, and awareness on healthcare insurance significantly predict the healthcare utilization of the respondents (p<0.05).

In terms of the direction of influence of the predictors on healthcare utilization, family size, monthly income, geographical area, awareness on health insurance, and performing exercise frequency have a negative impact on healthcare utilization as denoted by a negative standardized coefficient. The finding implies that respondents who live in larger families, earn higher monthly income, reside in the urban barangays, are unaware of healthcare insurance coverage, and performed exercise many times per week, have decreased utilization of healthcare services for the past six months. Among these predictors, family size had the most substantial adverse influence on healthcare utilization, followed by monthly income, geographical area, and awareness on health insurance coverage as denoted by their standardized coefficients of -0.12, -0.05, -0.04, -0.03, and -0.01, respectively.

This result conforms to the findings of Motlagh et al. (2015), which reported that the utilization of both inpatient and outpatient healthcare services decreases with increasing household size. Larger families are associated with a lower probability of reporting the disease as non-serious (Gorman & Braverman, 2008). With the reported association, these families may resort to non-admission to hospital facilities. Surprisingly, respondents with higher incomes had low healthcare utilization for the past six months. In contrast to this finding, Acharya et al. (2019) found that higher income was associated with higher odds of using health services. Senior citizens with pension income were most likely to avail of healthcare services (Jiang et al., 2018). These conflicting results could be attributed to residing with larger families and high consumption of both alcohol and cigarettes, which may avert spending of income to hospital care.

Moreover, it was reported in previous studies that distance to the healthcare facility or the geographical location of community dwellers has proven to be a problem that tends to limit access to the health service (Fisseha, Berhane, Worku, & Terefe, 2017; Onasoga, Afolayan, & Oladimeij, 2012). On the other hand, physical exercise activity has also been associated with lower utilization of healthcare. Compared to sedentary leisure time, the odds ratio for health care utilization decreased with increasing levels of physical exercise activities (Rocca, Beckman, Ekvall, & Ohlsson, 2015).

On the other hand, age, sex, alcohol drinking frequency, and cigarette consumption have a positive influence on healthcare utilization as denoted by a positive standardized coefficient. The result implies that respondents who are older belong to a female group, drank alcohol at a higher frequency per week, and consumed more cigarettes weekly, have increased utilization of healthcare services for the past six months. Among these predictors, cigarette consumption had the highest positive influence on healthcare utilization, followed by alcohol drinking frequency, sex, and age, as denoted by their standardized coefficients of 0.73, 0.22, 0.05, and 0.01, respectively.

As agreed by Atella et al. (2019), healthcare utilization increased among older adults in Italy. Consistently, the present data showed that increasing age is associated with higher healthcare use. Thus, aging, which is accompanied by multiple chronic conditions (Bahler, Huber, Brungger, & Reich, 2015), warrants appropriate medical consultation. Other than age, sex is also associated with the utilization of healthcare. Women were found to live longer as compared to men but unexpectedly reported more significant morbidity and disability and made greater use of health care services, particularly at the end of life (Noh, Kim, Park, & Kwon, 2016). As in the previous study of Huang (2017), it is indicated that women use more health care services than men in terms of the visit to general practitioners, home medical visits, number of medications, and overall utilization.

The present study also conforms to the study of Miquel et al. (2016), which showed that hospital admission rates were lowest for abstainers compared to people with moderate and heavy drinking. The study also reported that concerning hospital days, heavy drinking was associated with significantly higher adjusted rates than both abstainers and moderate drinkers. On the other hand, smoking has a direct influence on outpatient hospital visits (Li, Fan, & Supakankunti, 2018).

Table 6. Multiple Regression Analysis

Study Variables	Standardized Beta Coefficients	Sig.
(Constant)		
Family Size	-0.12	0.00
Monthly Income	-0.05	0.00
Geographical Area	-0.04	0.00
Awareness of Health Insurance	-0.03	0.00
Performing Exercise Frequency	-0.01	0.00
Age	0.01	0.02
Sex	0.05	0.00
Alcohol Drinking Frequency	0.22	0.00
Cigarette Consumption	0.73	0.00
Morbidity Count	-0.01	0.06
Educational Attainment	0.01	0.08
Ethnicity	-0.01	0.12
Marital Status	0.01	0.38

CONCLUSIONS

This is the first study to determine the factors affecting healthcare utilization among senior citizens in the Philippines. For the past six months, most of the respondents utilized healthcare services at a relatively low level. The lifestyle of the Filipino senior citizens in Davao City posed a detrimental issue on their overall health. Most of them consumed cigarettes and drank alcohol weekly. Also, most of them performed exercise at most once per week. When asked about their awareness of PhilHealth coverage, most of them were not aware that they automatically receive PhilHealth coverage in accredited healthcare facilities in the Philippines.

Socio-demographic profile, such as age and sex, were essential factors influencing healthcare utilization. Senior citizens who consumed alcohol and cigarette at a relatively high level had a higher demand for healthcare services. However, senior citizens who reside in urban barangays, belong to larger family size, and are unaware of healthcare insurance coverage, were disadvantageous groups in utilizing healthcare services.Recognizing the heterogeneity of the senior citizens, the findings recommend that policymakers may put more attention on

these vulnerable populations and take targeted measures to improve access to and use of health care services by senior citizens in need of medical care.

TRANSLATIONAL RESEARCH

The result of this study may leverage the vast amounts of readily accessible public datasets and uncover meaningful healthcare utilization patterns of the senior citizens that may be used to inform policy-making entities. Gathered data may be used as a reference for policies to improve healthcare access for the elderly and the development of health management and healthy aging programs for older people in Davao City.

This study may aid the hospital administration in the formulation of health measures on the growing senior citizen population. The findings of the study may help the administration implement new approaches in healthcare delivery to address the changing health status of the aging population and prepare for implementing a multidisciplinary approach to ensure that the senior citizens are receiving better case management.

Finally, the result of the study may guide in improving healthcare services to the elderly, making a paradigm shift in health governance and organizing measures to cater to the health needs of the senior citizens, especially in Davao City.

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