The dependency needs in the activities of daily living performance among Filipino elderly

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ABSTRACT

This study compared the dependency needs of the nursing home residents and community-dwelling elderly in the performance of Basic and Instrumental Activities of Daily Living (ADL). It was also correlated to their age, educational attainment, cognitive status, and health-related conditions. It was conducted in one community and in four (4) Geriatric Homes in Cebu, Philippines. There were 120 respondents of the study, aged 65 years old and above. To measure their cognitive status, the standardized Mini Mental Status Examination by Folstein et al. (1975) was used. The dependency needs in performing ADLs were assessed using the Katz Index of Independence (1963) and Lawton Instrumental ADL Scale (1969). The elderly from the home for the age needed assistance in basic ADL and are dependent on the performing instrumental ADL, while the community-dwelling elderly were independent in both basic and instrumental ADL. Age, educational attainment, co-morbidities and cognitive status were found to have significant relationships in the performance of basic and instrumental ADL among the Filipino elderly. Moreover, there was a significant difference in the ADL performance between the nursing home residents and community-dwelling elderly. With functional decline as person ages, it is essential to support the health needs of the elderly.

Keywords: Activities of daily living, cognitive status, community-dwelling elderly, dependency needs, Filipino elderly, functional status, health-related conditions, nursing home residents.

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INTRODUCTION

Elderly people constitute a growing and therefore important patient group in everyday clinical practice. Based on the country's report, elderly Filipinos will increase in number as they will constitute almost ten percent of the population in the next two decades. According to Parong et al. (2008), the total population of the country as of May 2000 is 75,330,000, with 5.7% elderly. In 2008, it increased to 80 million, 6.4% of which comprised those aged 60 years old and above. As of July 2013, its continual growth reached 105,720,644, ranking 12th in the most populated country in the world. With these data, special health needs are expected from this segment of the population.

Functional status is defined as a person's ability to perform the activities necessary to ensure well-being. Functional assessment is derived from a systems model, which recognizes the interrelationship of the biological, psychological and social domains of the person and their interaction with the environment. In older adults, adaptive responses to stressors in any of these domains can contribute to behavior and well-being (Linton and Lach, 2007). With functional decline, the risks for health care utilization, nursing home placement and death increase (Touchy and Jett, 2005). Activities of daily living are a measure of the functional status of older persons.

Aging appears to affect to various extents all aspects of human endeavors, including cognitive and motor function. It is clear that neuromuscular capabilities functionality and structurally decline with advancing age, motor capabilities (Shea et al., 2006). The age-related decrease in muscle strength is directly related to decrease in muscular mass. This is significant because

reduced strength is a major cause of disability on older adults. The decrease in the size of the muscle fibers results in reduction of isometric strength (Smeltzer and Bare, 2008). A cross-sectional study done by Al-Mahadi and Elzubier (1997) was carried out on a sample of elderly subjects aged 65 years and above in Saudi Arabia. The study revealed that impairment in the activities of daily living and instrumental activities of daily living were observed among the research subjects. Advancing age and female gender was found to be negatively associated with functional activity, while male gender and having an occupation were found to be positively associated with functional activity. Beswick et al. (2008) identified the factors associated with frailty and determine the ability of the identified factors to detect frailty among the rural elderly community-dwellers. It was found out that age and education were significantly correlated with the functional status of the elderly, whereas gender and chronic diseases were not.

Albacea and Gironella (1996) revealed that a gainful senior citizen is more likely to be male, age between 60 to 64 years old. An estimated number of gainful senior citizens in the Philippines comprise 43% of the total senior citizen in the country. Additionally, Lim et al. (2007) concluded that self-reported health and physical activity level is significantly related to gender. Moreover, in the study of Chiplis (2006), age was the only predictor of balance in healthy adults.

The study of Touchy and Jett (2005) revealed that well-being for those older than 60 years is strongly related to health but is affected by socioeconomic factors, degree of social interaction, marital status and aspects of one's living situation and environment. In the Philippines, there are older people who are dependent on their children than those receiving pension. According to Grenier (2007), the lower the educational attainment of the elderly person, the higher is the probability of frailty since it may reflect the skills and knowledge that are important for making for making health behavior choices.

Age related declines in cognitive processing are well documented and may contribute to limitations in performing daily living tasks as people age. Schrodt (2006) confirmed that cognitive processing is associated with both concurrent and future levels of physical function, such that poor cognitive processing is associated with lower levels of physical function. According to Borg et al. (2008), the cognitive status of the elderly demonstrated statistically significant residential and demographic differences. Thirty five percent (35%) of the cognitively intact elders were community dwelling and forty seven percent (47%) are in assisted-living. Those over 85 years were significantly more often severely or totally impaired in their activities of daily living than those in the younger age group. Moreover, people with cognitive impairment were most likely to reside in nursing home. The findings also suggest that person with higher level of education may progress toward dementia more slowly than those with lower level of educational attainment (Elliot et al., 2007). The belief reflects the greater cognitive reserve hypothesis that supports the notion that person with higher level of education of brain activity are better able to maintain high levels of cognitive function.

A variety of comorbid conditions are related to mobility limitations in older adults, including heart disease, foot and joint problem and pain. Older adults with heart disease are more likely to have mobility problem limitations. Foot problems are also related to several mobility indices including stability, stair ascent and descent and steeping ability (Yeom et al., 2008). Moreover, functional status, were all significantly lower among residents with contractures compared to those without. The presence of contractures was also significantly greater in residents requiring more assistance or in those who were unable to perform the functional performance tests (Matsui and Capetzi, 2008).

Chronic health problems increase as age increases. The growth of the elder population is characterized by unique and diverse individuals who may require a variety of health care professionals to meet their health care needs. Gerontological nursing involves advocating for the health of older persons at all levels of prevention. The objective of care is to provide a place of safety and care to attain optimal wellness and independence for each individual.

MATERIALS AND METHODS

Sample

This study compared the dependency needs of the nursing home residents and community-dwelling elderly in the performance of Basic and Instrumental Activities of Daily Living (ADL). It was also correlated to their age, educational attainment, cognitive status and co-morbidities. It was conducted in one community and in four (4) Geriatric Homes in Cebu, Philippines. There were 120 respondents of the study, aged 65 years old and above.

Instrumentation

There were three standardized instruments used as main tool in the study. They were merged as one to come up with an interview guide questionnaire. The instrument was made up of three parts. The first part is about the demographic profile of the research subjects, which includes their age, gender, educational attainment, cognitive status and health related condition. It also asked whether they are living in home for the aged or in the community. To measure their cognitive status, the standardized Mini Mental Status Examination by Folstein et al. (1975) was used. The dependency needs in performing ADLs were assessed using the Katz Index of Independence (1963) and Lawton Instrumental ADL Scale (1969).

The Mini Mental State Examination (MMSE) is a tool that can be used to systematically and thoroughly assess mental status. It is an 11-question measure that tests five areas of cognitive function: orientation, registration, attention and calculation, recall, and language. The total perfect score is 30 points. A score of 23 to 30 indicates no impairment; 21 to 22 indicates mild impairment; 10 to

Table 1. Profile of the respondents from the nursing home and community.

| Profile | Location of the respondents | | | | Totality | |
| | Home for the aged | | Community-dwelling elderly | | | |
	f	%	f	%	f	%
Age						
65 to 75 years old	30	25.0	44	36.7	74	61.7
76 to 85 years old	15	12.5	12	10.0	27	22.5
86 years and older	15	12.5	4	3.3	19	15.8
Gender						
Male	17	14.2	19	15.8	36	30
Female	43	35.8	41	34.2	84	70
Educational attainment						
Elementary level	12	10.0	0	0	12	10
Elementary graduate	16	13.3	4	3.3	20	16.7
High school level	13	10.8	7	5.8	20	16.7
High school graduate	10	8.3	13	10.8	23	19.2
College level	5	4.2	19	15.8	24	20.0
College graduate	3	2.5	14	11.7	17	14.2
Post graduate studies	1	0.8	3	2.5	4	3.3
Cognitive status						
No impairment	30	25.0	48	40	78	65.0
Mild impairment	14	11.7	5	4.2	19	15.8
Moderate impairment	12	10.0	6	5	18	15.0
Severe impairment	4	3.3	1	0.8	5	4.2
No impairment	30	25.0	48	40	78	65.0

20 means moderate impairment; and 9 or less means severe impairment. On the same hand, Katz Activities of Daily Living Scale was modified and used as an instrument to measure client's ability to perform basic activities of daily living independently. The Index ranks adequacy of performance in the six functions of bathing, dressing, toileting, transferring, continence, and feeding. Moreover, to measure their IADL, Lawton Instrumental Activity of Daily Living standardized instrument was used. It constitutes a range of activities more complex than those needed for personal self-care and aims to assess a person's ability to function in his environment. The two standardized tools are scored in a three-point Likert scale wherein; independent - 3; needs assistance - 2; and dependent is scored as 1 point.

The research instrument was translated into vernacular for easier administration of questions. Three Visayan dialect linguist and experts in the field of gerontology were consulted so as to ensure accuracy of translation and for content and face validity of instrument. Furthermore, the research tool underwent pre-testing to assess the adequacy of research plan and validity of statements in Sambag II, Urgello St. Cebu City.

Statistical analysis

The following statistical formula were used: Simple percentage to present the profile of the subjects. Additionally, weighted mean was employed for the categorical responses of the respondents based upon the statements on their extent of dependence in performing basic and instrumental activities of daily living. Correlational techniques were utilized to determine the significant relationship between the profile of the elderly and their extent of dependence in performing basic and instrumental activities of daily living. T- test was used to determine the significant difference between the extent of dependence of the nursing home and community-residing elderly in performing of their basic and instrumental activities of daily living.

RESULTS

Profile of the respondents

The profile of the respondents from the nursing home and community in terms of age, gender, educational attainment and cognitive status is depicted in Table 1. Majority of them belonged to the age bracket of 65 to 75 years old with a frequency of 74 (61.7%) among the 120 respondents. Thirty (30) of these respondents or 25% were from the home for the aged and 44 (36.7%) are community-dwelling. Only 27 (22.5%) were in the age bracket of 76 to 85 years old, of which 15 (12.5%) were from the nursing home and 12 (10%) were community

Table 2. Health-related condition profile of the research respondents.

| Health-related problems | Location of the respondents | | | | Totality | |
| | Home for the aged | | Community-dwelling elderly | | | |
	f	Rank	f	Rank	f	Rank
Lung problem	9	7	4	6.5	13	7
Cancer	0	8.5	2	9	2	9
Diabetes mellitus	15	6	4	6.5	19	6
Liver disease	0	8.5	3	8	3	8
Gastrointestinal	16	5	13	5	29	5
Cardiovascular	36	4	40	4	76	4
Musculoskeletal	57	1	55	1	112	1
Visual problem	45	2	47	2	92	2
Hearing problem	44	3	39	3	83	3

Table 3. Dependency needs of the nursing home residents and community-dwelling elderly in performing their basic activities of daily living.

| Basic activities of daily living | Location of the respondents | | | | Weighted mean value | Description |
| | Home for the aged | | Community-dwelling elderly | | | |
	Mean	Interpretation	Mean	Interpretation		
Bathing	1.95	Needs assistance	2.72	Independent	2.33	Needs assistance
Dressing	1.88	Needs assistance	2.80	Independent	2.51	Independent
Toileting	2.00	Needs assistance	2.78	Independent	2.38	Independent
Transferring	1.73	Needs assistance	2.78	Independent	2.33	Needs assistance
Continence	2.22	Needs assistance	2.80	Independent	2.51	Independent
Feeding	2.27	Needs assistance	2.83	Independent	2.55	Independent

1.00 – 1.67 Dependent; 1.68 – 2. 33 Needs Assistance; 2.34 – 3.00 Independent.

dwelling. There were 19 (15.8%) aged 86 years old and above. A greater portion of them are female with a frequency of 84 (70%), of which 43 (35.8%) of the total respondents are from the home for the aged and 41 (34.2%) are from the community. There were 36 (30%) male respondents, 17 of them are from the home for the aged and 19 are from the community.

In totality, majority of the respondents were college level with a frequency of 24 (20%). Among these elderly are from the community with a frequency of 19 (15.8%) and 5 (4.2%) from the nursing home. Majority of the elderly in the home for the aged were elementary graduate with a frequency of 16 (13.3%). In the community, majority of the elderly were college level with a frequency of 19 (15.8%). Majority of the research respondents have no impairment with a frequency of 78 (65%). From this, 30 (25%) were from the home of the aged and 48 (40%) of the elderly were from the community. There were 19 (15.8%) elderly with mild impairment. Fourteen (11.7%) were from the nursing home and 5 (4.2%) of the elderly were from the community. Eighteen (15%) of the elderly had moderate impairment. Five (4.2%) of the respondents had severe impairment.

Health-related condition of the respondents

Table 2 portrays the health related condition that the elderly were suffering. According to the rank, musculoskeletal problem is the primary disease that afflicted the elderly with a frequency of 112. Second in rank is the visual problem with a frequency of 92. Third in rank is the hearing problem having a frequency of 83.

Dependency needs of the nursing home residents and community-dwelling elderly in performing their basic activities of daily living

Table 3 illustrates the extent of dependence of the nursing home residents and community-dwelling elderly in performing their basic activities of daily living. Activities of daily living, is a measure of the functional status of older persons. In the performance of basic ADL, the elderly from the nursing home needs assistance in bathing while the community-dwelling can bath self completely or needs help in bathing only a single part of the body such as the back, genital area or disabled extremity. The nursing home elderly needs assistance in

Table 4. Dependency needs of the nursing home residents and community-dwelling elderly in performing their instrumental activities of daily living.

Instrumental activities of daily living	Location of the respondents				Weighted mean value	Description
	Home for the aged		Community-dwelling elderly			
	Mean	Interpretation	Mean	Interpretation		
Use telephone	1.81	Needs assistance	2.72	Independent	2.27	Needs assistance
Using transportation	1.48	Dependent	2.12	Needs assistance	1.84	Needs assistance
Shopping	1.55	Dependent	2.68	Independent	2.12	Needs assistance
Meal preparation	1.60	Dependent	2.72	Independent	2.16	Needs assistance
Housework	1.55	Dependent	2.73	Independent	2.19	Needs assistance
Medication use	1.57	Dependent	2.68	Independent	2.13	Needs assistance
Money management	1.58	Dependent	2.68	Independent	2.13	Needs assistance

1.00 – 1.67 Dependent; 1.68 – 2. 33 Needs Assistance, 2.34 – 3.00 Independent.

dressing while the community-dwelling can independently get clothes from closets and drawers and put on clothes and outer garments complete with fasteners. In toileting, the home for the aged residents need assistance in transferring to the toilet and cleaning self while the community dwelling are independent in going to toilet, getting on and off, arranging clothes, and cleaning genital area. In transferring, the nursing home residents need assistance in moving from bed to chair while the community-dwelling moves in and out of bed or chair unassisted. In terms of continence, the home for the aged elderly is partially incontinent while the community dwelling elderly have full control over their bladder and bowel. The home for the aged needs partial help with feeding while the community can feed themselves independently.

Dependency needs of the nursing home residents and community-dwelling elderly in performing their instrumental activities of daily living

Table 4 shows the extent of dependence of the nursing home residents in performing their instrumental activities of daily living. In performing their instrumental activities of daily living, the home for the aged residents need assistance in using telephone and dependent in using transportation, shopping their clothes and foods, meal preparation, doing housework, using their medication and managing their money. Meanwhile, the community-dwelling elderly are independent in using telephone, needs assistance in transporting and independent in shopping, meal preparation, housework, and medication use and money management.

Relationship between the profile and extent of dependence in the ADL performance among the elderly

Table 5 displays the relationship between the profile and

extent of dependence in the ADL performance among the elderly. Age obtained a correlation coefficient value of -0.636 with a p-value of 0.0001 for basic ADL and a correlation coefficient value -0.556 with a p-value of 0.0001 for Instrumental ADL. Gender obtained a correlation coefficient of 0.155 and a p-value of 0.216 for basic ADL and a 0.130 correlation coefficient and a p-value of 0.399. There is no significant relationship between gender and the dependency needs of the elderly. Educational Attainment had a correlation coefficient value of 0.305 with a p-value of 0.005 for basic ADL and 0.392 for instrumental ADL with p-value of 0.001. Cognitive status obtained a correlation coefficient value of 0.753 and a p-value of 0.0001 for basic ADL. For instrumental ADL, it has a correlation coefficient value of 0.642 with a p-value of 0.0001. Health related condition has a correlation coefficient value of -0.300 with a p-value of 0.001 for basic ADL and a correlation coefficient value of -0.266 with a p- value of 0.003 for instrumental ADL.

Difference in the performance of activities of daily living between nursing home residents and community-dwelling elderly

Table 6 shows the difference between the ADL performance among the nursing home residents and community-dwelling elderly. The elderly from the home for the aged obtained a mean of 2.09 for basic ADL, interpreted as needs assistance and 1.61 for Instrumental ADL, interpreted as dependent. Meanwhile, the community-dwelling elderly were independent for basic and instrumental ADL with a mean of 2.78 and 2.63 respectively.

DISCUSSION

The findings in the study showed that there was variation in the extent of dependence among Filipino Elderly in

Table 5. Respondents' profile in relation to their extent of dependence in performing basic and instrumental activities of daily living.

Respondents' profile	Basic activities of daily living			Instrumental activities of daily living		
	Correlation coefficient	P-value	Interpretation	Correlation coefficient	P-value	Interpretation
Age	-0.636*	0.0001	Significantly related	-0.556*	0.0001	Significantly related
Gender	0.155^{ns}	0.216	Not significantly related	0.130^{ns}	0.399	Not significantly related
Educational attainment	0.305*	0.005	Significantly related	0.392*	0.001	Significantly related
Health-related condition	-0.300*	0.001	Significantly related	-0.266*	0.003	Significantly related
Cognitive status	0.753*	0.0001	Significantly related	0.642*	0.0001	Significantly related

* - Significant at 0.05 level; ns- Not Significant at 0.05 level.

Table 6. The mean difference of the performance of activities of daily living between nursing home residents and community-dwelling elderly.

Activities of daily living	Home for the aged		Community-dwelling elderly		t-value	P-value	Interpretation
	Mean	Description	Mean	Description			
Basic activities of daily living	2.09	Needs assistance	2.78	Independent	-6.221*	<0.001	Significant
Instrumental activities of daily living	1.61	Dependent	2.63	Independent	-9.488*	<0.001	Significant
Totality	1.85	Needs assistance	2.70	Independent	-8.193*	<0.001	Significant

* - Significant at 0.05 level; ns - Not Significant at 0.05 level.

performing their ADL as the community-dwelling elderly were independent while the nursing home residents need assistance. The findings affirmed with Touchy and Jett (2005) indicating that with functional decline, the risks for health care utilization and nursing home placement. Similar result has been shown in a cross-sectional study done by Al-Mahadi and Elzubier (1997) on a sample of elderly subjects aged 65 years and above in Saudi Arabia which revealed in their impairment of the activities of daily living.

Age and educational attainment were found to affect the dependency needs among elderly in performing their basic and instrumental activities of daily living. This result confirmed with Beswick et al. (2008), Grenier (2007), Borg et al. (2008) and Chiplis (2006) that age and education were significantly correlated with the functional status of the elderly and that age was a predictor of balance in healthy adults. This means that as age progresses, the more dependent the elderly becomes in the performance of their ADL. In addition, the lower the educational attainment of the elderly person, the higher is

the probability of frailty since it may reflect the skills and knowledge that are important for making health behavior choices.

The study also supported Yeom et al. (2008), Fried et al. (2004) and Matsui and Capetzi (2008) that health-related conditions contribute to the impairment in ADL among elderly. This links to the disease state and the mechanism that lead to dependency or physical limitations. One thread followed deficiencies that can reduce vision, leading to falls and serious injury. Another looked at how disease combination may magnify each other symptoms and hasten the onset of dependency.

Moreover, this study found a significant relationship between cognitive status and the ADL performance among the elderly. This implies that elderly with no impairment in cognition performs ADL independently while elderly with severe impairment depends greatly to others. This finding is supported by Borg et al. (2008) and Hilgenkamp et al. (2011) in their studies that as age advances, health and cognitive abilities get impaired increasingly which contribute to the deterioration in the

performance of ADL. Age related declines in cognitive processing are well documented and may contribute to limitations in performing daily living tasks as people age. Schrodt (2006) confirmed that cognitive processing is associated with both concurrent and future levels of physical function, such that poor cognitive processing is associated with lower levels of physical function. Borg et al. (2008), found out that cognitive status of the elderly demonstrated statistically significant residential and demographic differences and that, as cited by Elliot et al. (2007), people with cognitive impairment were most likely to reside in nursing home.

In this study, impairment in performing ADL is more sensitive to biological factors namely age, presence of health problems, educational attainment and their cognitive status. Thus, with functional decline as person ages, it is essential to support the health needs of the elderly.

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