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Functional Disability Among Emirati Senior Citizens In The Home Care Program -Ras Al-Khaimah ,UAE

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Abstract:
Background*: The scientific & technological developments world over has culminated into the numerous benefits to mankind. Increased in life span of man is one of such benefit that is experienced all over the globe. The United Arab Emirates like other many countries world-wide is experiencing demographic transition where the number of elderly in the UAE has increased threefold between 1995 to 2010 and is expected to be 20 per cent of the population by 2020, so a fifth of the population will be composed of the elderly. As disability is associated with increasing age, therefore, the Emirati senior citizens population will exposed to the risk of disability.*
Aim*: to assess the prevalence of functional disability and its associated factors among Emirati senior citizens.*
Methodology*: A cross sectional descriptive and correlation designs were carried out during routine home visits as a part of health care services in Julphar health center, Ras Al-Khaimah-UAE. The study sample size was 154 senior citizens where selected randomly from the sampling frame using sample criteria. Participants were interviewed individually to assess the functional disability using self-reported activities of daily living (ADL/IADL) scales and the Short Portable Mental Status Questionnaire (SPMSQ) to measure their cognitive function.*
Results*: The overall prevalence of functional disability among elderly participants was (31.0%) and only the total dependent participants were (7.0%). Increased risk of functional disability was significant associated with advanced age (P= .003, $\chi 2$ =19.49) , female gender (P= .001, $\chi 2$ =16.62), cognitive status (P= .000, $\chi 2$ =33.02), history of chronic illnesses (P= .001, $\chi 2$ = 17.18), and functional limitation (P= .000, $\chi 2$ =77.8). In ddition, there were no statistical significant associations between functional disability and marital status, living arrangement, smoking status and alcohol intake.*
Conclusion and recommendation *: Functional disability is one of a major health problem among Emirati senior citizens who are enrolled in the home care program in UAE and this target population need more attention from the community health nurse to incorporate functional assessment tools into elderly care to detect earlier the older adults who have functional limitation which may enhance disability for the first time in later life and to have further planning to eliminate disability as well as to reduce the negative impacts of this disability on the quality of life and increasing the quality of the services provided.*
Key words: *functional disability, prevalence, senior citizens, ADL/IADLs,SPMSQ.*

I. Introduction

Today the world is facing a great challenge when the later stages of a longstanding demographics transition from a predominant high mortality and high fertility pattern to a low mortality and low fertility pattern due to medical, technological and socioeconomic progress of the 21st century(1) .

Increasing in life expectancy and sharp declines in fertility rates underlies the current and rapid age-specific population growth has a great impact on the world wide proportion of persons over 65 years of age and is expected between the years 2000 and 2050, to be more than double from the current 6.9% to 16.4%, while the proportion of oldest-old (80 + years) will increase during this period from 1.9 % to 4.2 %. The population of centenarians in 2050 will be 16 times larger than that in 1998 (1,2,3,4) .

The United Arab Emirates (UAE) like many other countries world-wide is experiencing demographic transition where the number of elderly in the UAE has increased threefold between 1995 to 2010 and is expected to be 20 % of the population by 2020, so a fifth of the population will be composed of the elderly(5) . These increases in life expectancy will substantially increases the proportion of the elderly population most at risk for disability during a time in the lifecycle when remedies for coping are relatively scarce.

In particular, epidemiological research disability is a useful concept in assessing the health of elderly people, because they have several diseases occurring simultaneously with varied severity and impacts on their daily lives. According to Gill et al., (2003) have reported the disability is a precursor for important outcomes such as hospitalization, institutionalization, and death(6). It also has a powerful effect of disability on individual

well-being, happiness, life satisfaction, the need for both formal and informal care, as well as has impact on health, social, economic systems [7].

On the basis of several studies on aging with disability and functional limitation have been reported that the process of disability represents a distinct phase in the life of many elderly persons and it cannot be over emphasized and they need more research in this area for paying attention to both medical and social aspect [8]. However, in UAE the magnitude of functional disability among the elderly is still not documented. Therefore , this study pursued to assess the prevalence of disability and to determine the associated factors with disability among senior citizens in home care program in Ras Al-Khaimah UAE, this may influence the future of the community best practice for elderly people with functional limitation or functional disability .

II. Objectives Of The Study:

1. To assess prevalence of functional disability among Emirati senior citizens enrolled in the home care program, Ras Al-Khaimah.
2. To assess degrees of functional disability among Emirati senior citizens enrolled in the home care program, Ras Al-Khaimah.
3. To assess functional limitation among Emirati senior citizens enrolled in the home care program- Ras Al-Khaimah.
4. To identify the relationship between functional limitation and socio- demographic characteristics, and health related variables.
5. To identify the relationship between functional disability and socio- demographic characteristics, health related variables, and functional limitation.

III. Methodology :

Designs and Setting:

A cross sectional descriptive and correlation designs were carried out during routine home visits as a part of health care services in Julphar health center in Ras Al-Khaimah – UAE to describe the degree of functional disability among Emirate senior citizens , determine associated factors with disability and examine the interrlataionship between functional disability as a dependent varable and associated factors as an independent variables.

Study sample

All the elderly people who benefited from the home care program is 270. The study sample size was 154 senior citizens where selected randomly from the sampling frame using sample criteria to give each the opportunity for selection and taking place in the study. Inclusion criteria: Emirati senior citizens aged 60 years and over , who enrolled in home health care program; both genders; their family caregivers/ or proxy caregiver or home helpers who are willing to participate in the study . Emirati senior citizens who were permanent residents in their home and not staying in institution/ or geriatric hospital for health care. Exclusion criteria: Emirati senior citizens who are suffering from psychiatric or mental illnesses.

Ethical consideration:

This study was conducted with approval of the Ethical and Research committee of RAK Medical and Health Sciences University, UAE. Investigator collected written informed consent from the participants after explaining the purpose and procedures of the research to all the participants and their caregivers. Also investigator clarified the potential risks and benefits associated with their participation and the right of withdrawal from the research without penalty , and the confidentiality of the data.

Data collection

Data collection tools consisted of Part-1: A structured interview questionnaire that included (a).socio-demographic data of Emirati senior citizen; health behavior which is focused on smoking status and alcohol intake;(b).self-reported of the medical condition to assess types and number of the chronic diseases;(c).function limitation to measure both upper & lower body functional limitation .

Part-2: Katz Index of Independence in Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL) are used for determination of disability status as measured by the patient's self-report or from her/his proxy caregiver or home helper who is familiar with the patient's abilities during the home visit. The ADL is measured of the client's ability to perform activities of daily living independently. The index ranks adequacy of performance in the six functions of bathing, dressing, toileting, transferring, continence, and feeding . Participants responded to each item in Katz Index ADL (total points for scoring: 6 = High (patient independent) and 0 = Low (patient very dependent). Sum the participant's scores for each item and then categorized the degree of disability as follow: Mild disabled = Unable to perform 1-2 items in ADL Scale;

moderately disabled = Unable to perform 3-4 items in ADL Scale; severely disabled = Unable to perform 5-6 items in ADL scale[9]. The Lawton Instrumental Activities of Daily Living Scale (IADL) is an appropriate instrument to assess independent living skills[10]. These skills are considered more complex than the basic activities of daily living as measured by the Katz Index of ADLs. The instrument is most useful for identifying how a person is functioning at the present time. There are eight domains of function measured with the Lawton IADL scale are telephone, shopping, food preparation, house-keeping, laundry, mode of transportation, responsibility for own medication, and ability to handle finance. A summary score ranges from 0 (low function, dependent) to 8 (high function, independent).

Part-3: Short Portable Mental Status (SPMS) questionnaire to measure orientation, personal history, remote memory and calculation ability. One point is given for each correct answer[11]. Items score are constructed by summing up the 10 items, yielding a range from 0 to 10. Each item was rated as 0 = right answer, 1 = wrong answer. The total score was 10, classified as the following: 0-2 errors: (normal mental functioning), 3-4 errors: (mild cognitive impairment), 5-7errors: (moderate cognitive impairment), 8 or more errors: (severe cognitive impairment).

The questionnaire was translated forward to Arabic and back translated to English by a group of experts who were well versed in both languages and had tested the content validity.

Pilot study

Ten patients were selected for the pilot study to assess the feasibility of the study and translation procedures and to identify any modification required. The researcher found that the study was feasible within the time frame allotted by the home care team and the time was taken approximately 25 - 30 minutes to fulfill the questionnaire.

IV. Data Analysis:

The data were analyzed with SPSS (version 20). A descriptive analysis using frequency counts, percentages, means with standard deviations. Chi-square test was used to determine the relationship between socio-demographic characteristics, health behavior, chronic illness, functional limitation and functional disability of the elderly. The disability of the elderly was taken as the dependent variable and socio-demographic data, health behavior, medical condition, and functional limitation were taken as the independent variables. The level of statistical significant was set at $P < 0.05$.

V. Results:

Socio-Demographic Characteristics

Table (1) reveals the majority of the study sample was female [88(57.1%)] and the minority was male [66 (42.9%)]. Most of the age group for males and females of the study sample were (53% and 50% respectively) within 60-74years; and (28.8% and 33%) within 75-84years ; and (18.2% and 17%) were 85 years and above . Marital status of elderly showed that the majority of the study sample was 51.9 % married, 45.5% widowed, and 2.6% were divorced. All the participants 100 % were not formal educated.

In Figure 1 shown more than three – fourth (88%) of the participants live with home helper or proxy caregiver in those aged 85+ years and above, while low percent 66.9% of the participants in those aged 60-74 yrs. live with home helper or proxy caregiver .

Table 2 depicts the health related variables of the participants. More than half (51.5%) of males reported high percentage of smoking and the majority of the participants (80.3%) never drank alcohol, while in general, all elderly females participants reported never smoked and never drank alcohol. In both gender, more than two –thirds had normal cognitive function, 90.9% in elderly males and 73.9% in elderly females. Elderly females (20.4%) are almost seven times borderline cognitive impaired compared with elderly males (3.0%). In addition, elderly females (5.7%) are probably cognitive impaired which is merely equal with elderly male (6.0 %).

As shown in table (2), the most common chronic illnesses among participants are hypertension (32.5%), diabetes (26.6%), heart disease (11.7%), arthritis , stroke & CVA (7.2%), skin disorders (3.9%), and renal disorders (1.9%) and (9.0%) of the study sample had other chronic illnesses such cancer, anemia and thyroid problem. More than three quarters of elderly females (79.5 %) had one chronic disease compared with elderly males (75.8%). By contrast, elderly males reported (24.2%) had more one chronic disease than elderly females (20.5%).

The overall prevalence of functional disability (ADL/IADL) among Emirati senior citizens was reported at 31.0% (34 % and 27.3% for females and males respectively). Females were higher (29.5%) than males (25.8%) as likely to report difficulty in activities of daily living (ADL), By contrast , the males were almost twice in difficulty to perform instrumental activities of daily living (IADL) compared with females (Table-3).

In all the participants , the degree of functional disability was significantly correlated with the gender (P >0.001, $\chi 2$ =16.62). The degree of severe disability was significantly higher in females (16.2%) than in males (14.9%), and moderate disability was (30.5%) in females and (16.2%) in males; while mild disability was (3.9%) in females and (11.0%) in males (Table 4).

As disability increased with advancing age , Figure 3 shown the percentage of severe functional disability was more increased among both age groups 75 - 84 years and aged 85+ and above than young old group 60-74 yr.

Table (5) shows functional limitation of the upper limb in elderly females (39.0%) were reported more difficulty in putting hand behind the neck than males (20.8 %). Also in the same table, functional limitation of the lower limb, elderly females (34.4%) were reported more difficulties in climbing the stairs than males (20.1%). By contrast functional limitation of the upper limb in elderly males (22.08%) were reported more difficulty in putting hand behind lower back than females (11.03%). Also , functional limitation of the lower limb, elderly males (22.7%) were reported more difficulties in setting and standing from a chair than females (15.6%).

In Table 6, shows the socio-demographic and health-related variables used in the univariate analysis which are significantly associated with functional limitation. The independent variables found to be associated with functional limitation include advanced age, (≥ 60years) at (P= .000, $\chi 2$ =61.64), gender (P= .000, $\chi 2$ =19.89), cognitive status (P= .000, $\chi 2$ =31.03), and history of chronic illnesses (P= .000, $\chi 2$ =37.32). Also in this table, there is no statistical significant association between functional limitation with marital status, living arrangement, smoking status and alcohol intake.

Severe functional disability is defined as inability to perform at least five takes out of the total six tasks of ADL and seven takes out of the total eight tasks of IADL being assessed . In Table 7, the findings shown that the advanced age was found to have significant association with severe functional disability (P= .003, $\chi 2$ =19.49). Severe disability was also significantly associated with gender (P= .001, $\chi 2$ =16.62), cognitive status (P= .000, $\chi 2$ =33.02), history of chronic illnesses (P= .001, $\chi 2$ = 17.18), and functional limitation (P= .000, $\chi 2$ =77.8). In this study, there were no statistical significant associations between functional disability with marital status, living arrangement, smoking status and alcohol intake.

VI. Discussion:

Because functional ability is one of the most sensitive indicators of health in senior people and patients with chronic diseases, standards for evidence-based practice mandate that nurses incorporate functional assessments into all patient care. Therefore, the purpose of this study was to assess functional disability among Emirate senior citizens who are enrolled in the home care program in Ras Al-Khaimah, UAE and to determine the factors associated with functional disability. In addition, the Model Disablement Process's (1994) was used to guide and clarify what are the factors that influence the ability of people with a health problem to perform activities of daily living. [8,12].

Prevalence of functional disability

In the present study, the overall prevalence rate of functional disability (ADL/IADL) among Emirati senior citizens was reported at 31.0 % (34 % and 27.3% for females and males respectively) which is considered as database on disability among the senior citizens population those who are enrolled in the home health care program - Ras Al-Khaimah-UAE. Comparison of the prevalence of functional disability among elderly people aged 60 years and older in the present study with other studies in developing countries was difficult because there are discrepancy in the findings. For examples, in Nigeria the prevalence rate of disability among elderly people aged > 60 years using five, six, and ten basic ADL items was 12.1% , 15.7% , and 28.3% respectively, while among aged > 65 years the prevalence rate was increased into 15.6%, 21.4%, and 39.1% ; and among aged > 70 years the prevalence rate was much more 22.2%, 27.3%, and 45.5%; also among aged > 75 years the prevalence rate was 26.6%, 34.6 % and 52.8%[13]. In 2008 Malaysian's community-dwelling elderly population the prevalence rate of disability was observed at 22.8 percent (14.5% and 31% for men and women respectively) where using five activities of daily living and six instrumental activities of daily living[14]. Furthermore there is other study in Malaysia (2005) administered the five items ADL scale where the prevalence rate of disability was 16 %[15], in India the prevalence rate was 12.0 % [16], in Srilanka the prevalence rate was 10.0% [17]., and in Shanghai and China was 8.0% [18]. In contrast, in the developed countries , the prevalence rate of functional disability was much low when compared to the prevalence rate of disability of this study , for examples the prevalence rate was 6.0% in Canada,10.0% in France, 11.0% in Sweden, 14.0% in Italy [19] . However, there is a study was conducted in Singapore, the finding indicates that the prevalence disability was much lower[20],in Japan the prevalence of disability among aged populations was ranging from 8.0%-17.0%[21]. The interpretation for this discrepancy between the finding of the present study and the previous studies in other countries, firstly is may due to use of different ADL measurements disability of five, six, ten basics items ; also narrowing the

ADL items scale for disability to receiving help at least one of five ADL items or one of six ADL items. secondly, the difference in the proportion of the age groups in the present study compared to the previous studies. thirdly, the variation in sample size and the place of residence , which may have been led to change in the prevalence rate of functional disability.

Causes of disability

In the present study, age was a statistically significant factor of ADL disability and functional limitation. The prevalence of disability in the current study was increased with advanced aged. This finding is consistent with other study that reported prevalence of disability increased steeply with age ,with a doubling of prevalence for each 5-year increased [(22)]. In addition, other studies confirmed that increased rate of disability was associated independently with advanced age > 75 years [(21,23).] Also this finding is consistent with other studies that reported the older age has an important role on the disability process[(24,25,26).]

Also in the present study the results revealed that functional limitation was significantly associated with the advanced age . However, with increased in age group , the functional limitation percent was increased. This finding is consistent with other functional disability and functional limitation studies have found that increasing age is associated with increased functional limitation[(27,28,29)] . In addition, Abdulraheman et al.,(2011) found in all age groups had positively correlated with functional limitation where RR(95% CI) was 22.5 (18.1 , 24.4) among age group >60 years , 28.2 (25.3 , 32.8) among age group > 65 years, 38.0 (32.5,43.7) among age group >70 years, and 51.5 (43.7 , 60.5) among age group >75years [(13)] . The possible reason for this finding that ageing is a characterized by deterioration of many body systems, which led to a lower effectiveness of physiological functions accompanied by an increase in risk factors for various diseases that attribute to increase functional limitation or be disabled.

Both genders were well represented in the study, females were more participants in the present study. Females and males had a statistically significant association with functional limitation and function disability . The finding in the current study reveals that the rate of ADL/IADL disability are higher in females than males (34.0 % and 27.3 % respectively), This finding was confirmed with the previous studies documents that increased prevalence of disability was associated with female gender more than male [(13,30,31)]. The possible reason for the current finding is the percentage of the chronic illnesses was relatively higher in female (79.5%) than in male (75.8%).This finding is similar with other studies observed that reported the possible interpretation for gender differences in disability due to the underlying comorbidity may be more severe in women than men because musculoskeletal impairments may have a greater influence on the function limitation in women than in men which had a greater attributed to disability more frequently in women than in men; also in another study reported that incidence of orthopedics diseases such as fracture or arthritis among elderly women is greater than in men [(13,22,32,33)]. This study finding shows that functional limitations strongly associated with increased the risk of disability in both men and women. This disablement process model (Verbrugge & Jette, 1994) is supported that as a theoretical basis for this relationship, that mean the main pathway from pathology to disability is through functional limitations [(8)]. However, in the current study finding is consistent with the other studies which found that functional limitations and advanced age, gender, cognitive status and chronic illnesses were predictive of subsequent disability[(13,22,31,32)]. The possible reason for the current finding is the percentage of the chronic illness history was relatively higher in female than in male which may have been led to functional limitation as pathway of subsequent disability.

In the present study, all of participants were not formal educated and the results shown that education status had no a statistically significant variable with the ADL disability and functional limitation. This result was inconsistent with the previous studies which reported that lack of education may be associated with low income, poverty, poor standard of living, unhealthy lifestyle behavior, malnutrition, and less frequent use health and medical care services [(34,35)]. which had a positive association with functional limitation and physical disability . Although lack of education may not be associated for functional disability and functional limitation in the present study but there are many possible reasons for existing of high percent of functional disability and functional limitation among study sample which may lead to this finding for examples existing of unhealthy behaviors such as smoking and alcohol intake , and present of medical illnesses; and also advanced age, gender differences and cognitive impairment.

In the present study, more than half of the participants in the study were (51.9%) married and the majority of participants in the study were (66.8%) livings with the proxy caregiver or home helper. At the same time , this study result has shown that both marital status and living arrangement were not significant variables with ADL disability and functional limitation for both males and females. Conversely, other studies results given dissimilar results where marital status and living arrangement have significant correlation with ADL disability and functional limitation and also there is another study that shown a positive significant correlation between marriage and ADL disability and declared that being unmarried increased the risk of ADL disability and marriage might reflect the better social support among the married people in the prevention of functional

disability in older people [35,36,37,38]. In spite of the majority of the current study sample are married and live with proxy caregivers and home helpers who are provided emotional, physical, economic and social support, but still they are having high percent of ADL disability and functional limitation, the potential explanation for this finding may due to dramatically increased association with an advance in age, gender differences , presence of cognitive impairment, and a group of history of chronic medical illness as independent variables.

In the present study, functional limitation and functional disability had a statistically significant association with cognitive status; particularly among females gender because they had a higher percent in cognitive impairment than males. This finding is similar with other studies reported that a present of significant correlation between cognitive status and functional limitations as well as functional disability in older people. In addition, the strength of the association of cognitive status with physical functions increased more among women and in those aged 75 or older. Also in the previous studies reported that , the highest strength of evidence for an increased risk in functional status was found among cognitive impairment, depression, disease burden (comorbidity), body mass index, lower extremity functional limitation, low frequency of social contacts [39,40].

In addition, the findings in the current study have shown no significant relationship between smoking and alcohol and functional disability and functional limitation. Where the majority of the current study sample (77.9%) had never smoked and (91.5 %) had never consumed alcohol which may lead to prevailing the present finding. However, this finding inconsistent with other findings which found strong association between smoking and reduced ADL/IADL disability among women and also found that the smokers in the same study were more independent on ADL/IADL tasks than never smokers. This result may appear contradictory because smoking has been associated with other adverse health consequences[41,42].

A notable finding in this study is presence of a history of chronic medical illness was associated with disability for both males and females. Also hypertension,diabetes,and heart disease were the highest percent among study partcipants followed by stroke and arthitris. This result is consistent with other previous studies that have shown a significant association between physical disability and diabetes PR 6.1(95% CI 4.3-7.1),stroke 4.8 (95% CI 3.7-7.9),arthritis 3.7(95% CI 2.6 - 4.6) [13]. Also there are other studies showed that the significant association between heart disease or cardiovascular disease, stroke or cerebrovascular disease ,and visual impairment and risk of disability) [42,43,44,45]. This indicates that the senior partctipants who had a history of more than two chronic illness were struggling with the risk of disability more than the senior who had only one chronic illness.

VII. Conclusions:

Functional disability is one of a major health problem among Emirati senior citizens who are enrolled in the home care program in UAE. This study finding has shown that the prevalence rate of functional disability has a significant correlation with advanced age, gender, cognitive impairment , chronic illnesses and function limitation.

Recommendation:

The community health nurse can detect earlier the older adults who have experiencing late-onset disability for the first time in later life by discovery of the associated factors with functional limitation which may enhance functional disability among senior citizens and may help the nurse to have further planning to eliminate disability as well as to reduce the negative impacts of this disability on the quality of life and increasing the quality of the services provided.

References:

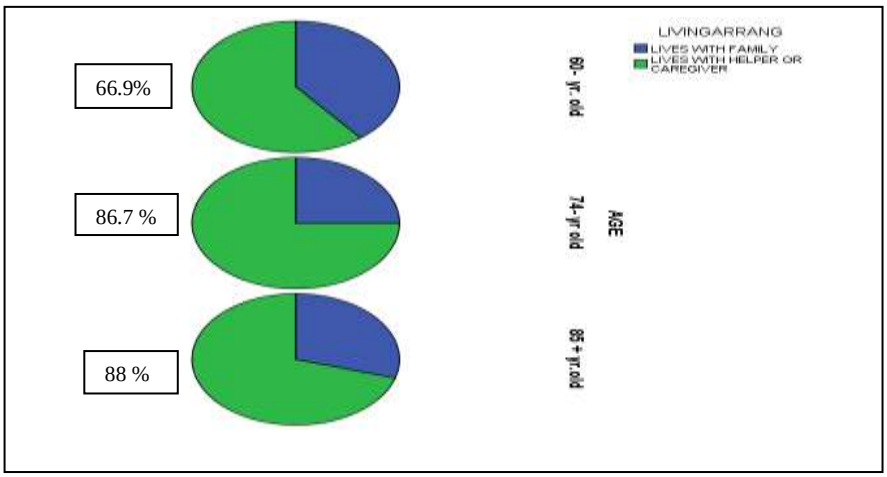
[1]. United Nations. World Population Prospects. New York. 2007. The 2006 Revision.
[2]. United Nations. World Population Prospects. New York. 2011. The 2010 Revision.
[3]. Mather CD, Sadana R, Salomon JA, Murrary CJ, Lopez AD: Healthy Life Expectancy in 191 Countries. 357:1685-91,2001.
[4]. Department of International Economic and Social Affairs.Periodical on Ageing. New York: United Nations. (1):1-61, 1985.
[5]. Statistics Centre - Abu Dhabi. Population and demography: Population, birth and deaths, marriage and divorce , migration. Retrieved on April 6th 2012 from: http://www.scad.ae/Publications/Year Book /Population %20 and % 20 Demography-English % 20 SYB % 20, 2011.pdf.
[6]. Gill TM, Allore H, and Guo Z. Restricted activity and functional decline among community-living older persons: Archives of Internal Medicine,163 (11), 1317-1322, 2003.
[7]. Fried LP, and Guralnik, JM. Disability in older adults – Evidence regarding significance, etiology and risk : Journal of American Geriatrics Society, 45, 92-100 , 1997.Verbrugge LM, and Jette AM. The
[8]. Disablement Process: Social Science and Medicine, vol.38 , no.1, pp.1-14,1994.
[9]. Katz S, Down TD, Cash HR,Grotz ,RC. Progress in the development of The index of ADL: The Gerontologist. vol.10, no.1 , pp. 20-30,1970.
[10]. Lawton MP, Brody EM. Assessment of older people: Self maintaining and instrumental activities of daily living. Gerontologist. vol. 9, pp.179- 186,1969.
[11]. Pfeiffer E. A short portable mental status questionnaire for the assessment of organic brain deficit in elderly patients: Journal of American Geriatrics Society. vol.23, 433- 41,1975.
[12]. Kresevic DM. Assessment of function: In: Capezuti D, Zwicker M, Mezey & Fulmer T, editor (s).

Evidence-based geriatric nursing protocols for best practice: 3rd ed., New York (NY): Springer Publishing Company, 2008.
[13]. Abdeulraheem IS , Oladipo AR, and Amodu MO . Prevalence and correlates of physical disability and functional limitation among elderly rural population in Nigeria: Journal of aging research . Volume 2011, Article ID 369894,13 pages.doi:10.4061/2011.
[14]. Siop S, Verbrugge LM and Abdul Hamid TAT. Disability and quality of life among older Malaysians: Paa.princeton.edu/papers/80962,2008.
[15]. Sherina M, Rampal L, Aini M, and Norhidayati H. The prevalence of depression among elderly in an urban area of Selangor , Malaysia: The international Medical Journal , vol., 4 no. 2 ,pp 57-63,2005.
[16]. Tang Z, Wang HX, Meng C, et al. The prevalence of functional disability in activities of daily living and instrumental activities of daily living among elderly Beijing Chinese: Archives of Gerontology and Geriatrics.vol.29,no.2,pp.115-125, 1999.
[17]. Nugegoda DB and Balasuriya. Health and social status of an elderly urban population in Srilanka: Social Science and Medicine,vol.40,no.4,pp.437- 442, 1995.
[18]. Chen P, Yu E, Zhang M, Liu WT,Hill R, Katzman R. ADL dependence and medical conditions in Chinese older persons: a population-based survey in Shanghai, China: Journal of the American Geriatrics Society.vol.,43, no.4, pp378-383,1995.
[19]. Lafortune G, Balestat G,and The disability study expert group members, Trends in severe disability among elderly people: Assessing the evidence in 12 OECD countries and the future implications,OECD Health Working Papers, no. 26, OECD Publishing. 2007.20.
[20]. Ng TP, Niti M, Chiam PC, and Kua EH. Prevalence and correlates of functional disability in multiethnic elderly Singaporeans," Journal of the American Geriatrics Society , vol. 54 ,no. 1, PP.21-29,2006.
[21]. Koyano W, Shibata H,Haga H, Sauyama Y.Prevalence and outcome of low ADL and incontinence among the elderly : five years follow –up in a Japanese urban community . Arch Gerontol Geriatr. 5:197-206,1986.
[22]. Yoshida D,Ninomiya T, Doi Y, Hata J. Prevalence and causes of functional disability in an elderly General population of Japanese : The Hisayama Study , J Epidemiol ; 222-229 doi:10.2188/jea.JE 20110083,2012.
[23]. Gill TM, Desai MM, Gahbauer EA. Holford TR, and Williams CS. Restricted activity among community-living older persons: incidence, precipitants, and health care utilization. Annals of Internal Medicine, 135(5): 313-321,2001. [PubMed].
[24]. Tas U, Verhagen AP, Bierma-Zeinstra, SM, Hofman A,Odding E., Pols HA, et al. Incidence and risk factors of disability in the elderly The Rotterdam study: Preventive medicine, 44,272-278. 2007.
[25]. Pèrés K, Verret C, Alioum A, Barberger- Gateau P. The Disablement Process: Factors Associated with Progression of Disability and Recovery in the French Elderly People. Disability and Rehabilitation.27(5):263-276, 2005.
[26]. Walter-Ginzburg A, Blumstein T, and Guralnik JM. The Israeli Kibbutz as a venue for reduced disability in old age: Lessons from the Cross-Sectional and Longitudinal Aging Study (CALAS): Social Science and Medicine. 59, 389-403,(2004).
[27]. Guralnik JM, and Ferrucci L. Assessing the building blocks of function:Utilizing measures of functional limitation: American Journal of Preventive Medicine, supplement 25 (3):112-121,2003. [PubMed].
[28]. Hairi NN, Bulgiba RG, Cumming V, Nagana than, Mudla I. Prevalence and correlates of physical disability and functional limitation among community dwelling older people in rural Malaysia , a middle income country : BMC Public Health. 2010 ; vol. 10, Article ID 492.
[29]. Kamiyama T, Muratani H, Kimura Y, Fukiyama K, Abe K, Fujii J, et al. Factors related to impairment of activities of daily activities of daily living: InternMed.;38:698-704,1999.
[30]. Von SE, Aguero-Torres H, Kareholt I,Winblad B, Fratiglioni L. Women are more disabled in basic activities of daily living than men only in very advanced ages : a study on disability , morbidity ,and mortality from the Kungshlemen project. J Clin Epidemiol. 56:669-77, 2003.
[31]. Wray LA, Blaum CS. Explaining the role of sex on disability : a population –based study Gerontologist.41:499-510 2001.
[32]. Guccione AA , Felson DT, Anderson JJ, Anthony JM, Zhang Y, Wilson PW , et al. The effects of specific medical conditions on the functional limitation of elders in the Framingham study. Am J Public Health.1994 ; 84:351-8,1994.
[33]. Demura S, Sato S, Minami M, Kaasuga K. Gender and age differences in basic ADL ability on the elderly : comparison between the independent and the dependent elderly . J Phsiol Anthropol Appl Human Sci . 22:19-27, 2003.
[34]. Boult C, Kane RL, Louis TA, Boult L, and McCaffrey D. Chronic conditions that lead to functional limitation in the elderly. Journal of Gerontology : Medical Science, 49 (1), M28-M36 ,1994.
[35]. Melzer D, and Parahyba MI. Socio-demographic correlates of mobility disability in older Brazilians: results of the first national survey, Age and Ageing ,vol. 33,no.3,pp.253-259,2004.
[36]. Avlund K, Lund R, Holstein BE, Due P, Sakari-Rantala R, Heikkinen R.The impact of structural and functional characteristics of social relations as determinants of functional decline. Journals of Gerontology: Social Sciences. 59B (1) S44-S51, 2004.
[37]. Bergamini I, Burgoni M, Federoni et al. Multidimensional evaluation of home - dewelling elderly : The impact of medical and social factors on health status indices. Archives of Gerontology and geriatrics , vol.44,supplement 1, pp. 75-81,2007.
[38]. Stucka A. E, Waltherta J. M, Nikolausb T., Bülac C J, Hohmannb C, Beckd JC: Risk factors for functional status decline in community-living elderly people: a systematic literature review, Social Science & Medicine,Volume 48, Issue 4, February 1999, Pages 445–469.
[39]. Lee Y., Kim J.H. , Lee K.J., Han G., Kim J.L. : Association of cognitive status with functional limitation and disability in older adults. Aging Clinical and experimental Research , February,vol.17, Issue 1, pp20-28, 2005.
[40]. Cederfedt M,Gosman- Hedstrom G, Savborg M, Tarkowski E. Influence of cognition on personal activities of daily living (P-ADL) in the acute phase : the Gothenburg Cognitive stroke in eldely. Arch Gerontol Geriatr. 49:118-22,2009.
[41]. Haas AL, Eng C, Dowling G, Schmitt E, Hall SM. The relationship between smoking history and current functioning in disabled community-dwelling older adults: Annals of Behavioural Medicine. 29 (3), 166-173, 2005.
[42]. Baggio G. Occurrence of chronic diseases and their impact on physical disability over the whole spectrum of aging: from 65 to over 100 years of age. Zeitschrift für Gerontologie and Geriatrie, 32 (6), 420-424, 1999.
[43]. Fransen M, Anderson C, Chalmers j, Chapman N, Davis S, MacMahon S, et al.,effects of a perindopril-based blood pressure-lowering regimen on disability and dependency in 6105 patients with cerebrovascular disease : a randomized controlled trial .Stroke .2003;34:2333-8.
[44]. Kattainen A, Koshinen S, Reunanen A, Martelin T, Knekt P, and Aromaa A. Impact of cardiovascular diseases on activity limitations and need for help among older persons. Journal of Clinical Epidemiology,57, 82-88, 2004.
[45]. Kubo M, Kiyohara Y, Kato I, Tanizaki Y,Arima H, Tanaka K, et al.Trends in the incidence , mortality,and survival rate of cardiovascular disease in Japanese comminty : the Hisayama study.stroke .34:2349-54, 2003.

Table 1: Description of Socio-Demographic Characteristics of the Respondents

Socio-demographicData	**Male (n) = 66**		**Female (n) = 88**		**Total (n) = 154**	
	n	**%**	**n**	**%**	**n**	**%**
Age group / years						
60-74	35	53.0	44	50.0	79	51.3
75-84	19	28.8	29	33.0	48	31.2
85+	12	18.2	15	17.0	27	17.5
M ± SD					81.96 + 9.4	
Marital status						
Married	48	72.7	32	36.4	80	51.9
Widowed	18	27.3	52	59.1	70	45.5
Divorced	0	0.0	4	4.5	4	2.6
Educational level						
Illiterate	66	100	88	100	154	100
Living arrangement						
Lives with family	25	37.9	26	29.5	51	33.1
Lives with home helper /caregiver	41	62.1	62	70.5	103	66.9

Figure 1: Percentage of the Participants by Age and Living Arrangement



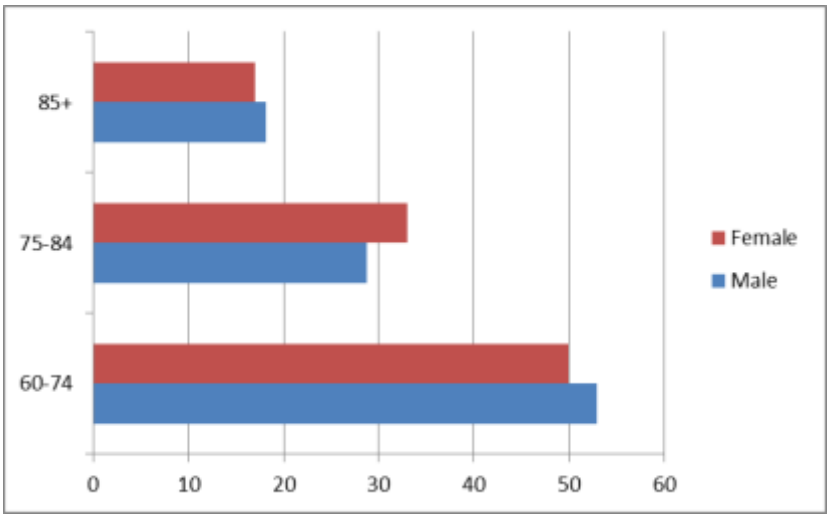


Figure 2: Percentage of the Participants by Age and Gender

Table 2: Descriptive Statistics of Health Behaviors of the Participants

Health Behaviors	**Male n = (66)**		**Female n = (88)**		**Total n = (154)**	
	n	**%**	**n**	**%**	**n**	**%**
Smoking Status						
Smoked	34	51.5	0	0.0	34	22.1
Never smoked	32	48.5	88	100	120	77.9
Alcohol Intake						
Consumed alcohol	13	19.7	0	0.0	13	8.5
Never consumed alcohol.	53	80.3	88	100	141	91.5
Cognitive Status						
Probably cognitive impaired	4	6.0	5	5. 7	9	5.8
Borderline cognitive impaired	2	3.0	18	20.4	20	13.0
Normal cognitive	60	90.9	65	73.9	125	81.2
Self-Medical Conditions Report						
Diabetes	18	27.3	23	26.1	41	26.6
Hypertension	21	31.9	29	33.0	50	32.5
Heart disease	8	12.2	10	11.4	18	11.7
Arthritis	5	7.6	6	6.8	11	7.2
Stroke /CVA	6	9.0	5	5.7	11	7.2
Skin disorders	2	3.0	4	4.5	6	3.9
Renal disorders	2	3.0	1	1.1	3	1.9
Others (cancer, anemia, thyroid problems)	4	6.0	10	11.4	14	9.0
Number of Chronic Diseases Report						
1	50	75.8	70	79.5	120	77.9
> 2	16	24.2	18	20.5	34	22.1

Table (3) Prevalence of ADL/IADL Disability for Males and Females (n=154)

Gender	**Independent**		**ADL/IADL Disability**							
			ADL		**IADL**		**ADL/IADL**		**Total**	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Males	1	1.5	17	25.8	30	45.5	18	27.3	66	42.9
Females	10	11.4	26	29.5	22	25.0	30	34.0	88	57.1
Total	11	7.1	43	27.9	52	33.8	48	31.0	154	100

Table 4: Categories of Disability Degree for Males and Females

ADL / IADL Disability	**Male n = (66)**		**Female n = (88)**		**Total = 154**		**χ2**	**p-Value**
	n	**%**	**n**	**%**	**n**	**%**		
No disability	1	0.6	10	6.4	11	7.1	16.62	.001***
Mild disability	17	11.0	6	3.9	23	14.9		
Moderate disability	25	16.2	47	30.5	27	17.5		
Severe disability	23	14.9	25	16.2	48	31.1		

* p< 0.05 correlation is significant at the 0.05 level

** p< 0.01 correlation is significant at the 0.05 level

*** p< 0.001 correlation is significant at the 0.05 level

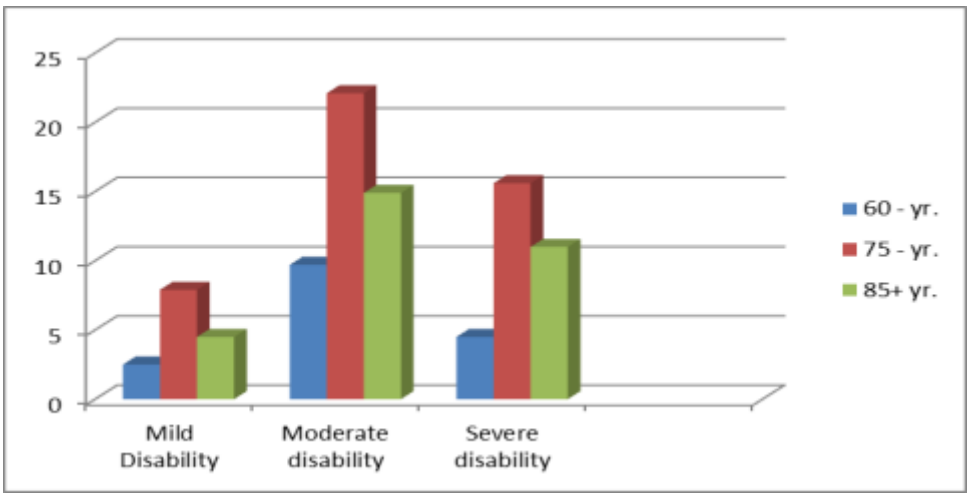


Figure 3: Percentage of the Participants by Age and ADL Disability

Table 5: Percentage of Participants with Functional Limitation for Males and Females

Functional Limitation	Male n=66		Female n=88		Total n=154	
	n	%	n	%	n	%
Upper Limb						
No Difficulty	0	0.0	11	7.0	11	7.0
Difficulty in putting hand behind neck	32	20.8	60	39	92	59.7
Difficulty in putting hand behind lower back	34	22.08	17	11.03	51	33.1
Lower Limb						
No Difficulty	0	0.0	11	7.0	11	7.0
Difficulty in climbing the stairs	31	20.1	53	34.4	84	54.5
Difficulty in sitting and standing from a chair	35	22.72	24	15.6	59	38.3

Table 6: Univariate Analysis of Health-Related Associated with Functional Limitation as a Dependent Variable

Variables	Functional Limitation n= (154)						$\chi 2$	p-Value
	Able to Perform		Need assistance		Not Able to Perform			
	n	%	n	%	n	%		
Age group / years								
60-	0	0.0	26	16.9	1	0.6		
75-	11	7.0	38	24.7	10	6.5	61.64	.000***
85+	0	0.0	19	12.3	49	31.8		
Gender								
Male	1	0.6	47	30.5	18	11.7	19.89	.000***
Female	10	6.4	36	23.4	42	27.3		
Marital status								
Married	9	5.8	44	28.6	27	17.5		
Widowed	2	1.2	37	24.0	31	20.2	5.21	.266
Divorced	0	0.0	2	1.3	2	1.3		
Living arrangement								
Lives with family	1	0.6	23	14.9	27	17.5		
Lives with home helper /proxy caregiver	10	6.4	60	39.0	33	21.4	7.78	.020
Smoking Status								
Smoked	0	0.0	17	11.0 42.8	17	11.0	4.60	.100
Never smoked	11	7.0	66		43	27.9		
Alcohol Intake								
Consumed alcohol	0	0.0	10	6.5	3	1.9	3.33	.189
Never consumed alcohol	11	7.0	73	47.4	57	37.1		
Cognitive Status								
Probably cognitive impaired	3	1.8	4	2.6	4	2.6	31.03	.000***
Borderline cognitive impaired	2	1.3	0	0.0	16	10.4		
Normal cognitive	6	3.9	79	51.3	40	26.0		
Number of Medical Diseases Report								
1	11	7.0	49	32.0	60	39.0	37.32	.000***
> 2	0	0.0	34	22.0	0	0.0		
Total	11	7.0	83	53.9	60	38.9		

* p< 0.05 correlation is significant at the 0.05 level
** p< 0.01 correlation is significant at the 0.05 level
*** p< 0.001 correlation is significant at the 0.05 level

Table 7: Univariate Analysis of Health-Related Associated with functional Disability as a Dependent Variable

Socio-Demographic Characteristics	ADL/IADL Disability n = (154)								$\chi 2$	P - Value
	No disability		Mild disability		Moderate disability		Severe disability			
	n	%	n	%	n	%	n	%		
Age / years										
60-	1	0.6	4	2.5	15	9.7	7	4.5	19.49	.003***
75-	9	5.8	12	7.9	34	22.1	24	15.6		
85+	1	0.6	7	4.5	23	14.9	17	11.0		
Gender										
Male	1	0.6	17	11.0	25	16.2	23	14.9	16.62	.001***
Female	10	6.4	6	3.9	47	30.5	25	16.3		
Marital status										
Married	9	5.8	16	10.4	30	19.5	25	16.2	5.39	.491
Widowed	2	1.2	7	4.5	42	27.2	4	2.6		
Divorced	0	0.0	0	0.0	0	0.0	4	2.6		
Living arrangement										
Lives with family	3	1.9	11	7.1	23	14.9	14	9.1	2.79	.424
Lives with home helper/ proxy caregiver	8	5.1	12	7.8	49	31.8	34	22.0		
Smoking Status										
Smoked	0	0.0	6	3.9	18	11.7	10	6.4	3.73	.292
Never smoked	11	7.0	17	11.0	54	35.0	38	24.7		
Alcohol Intake										
Consumed alcohol	0	0.0	3	1.9	4	2.6	6	3.9	3.44	.328
Never consumed alcohol	11	7.0	20	13.0	68	44.1	42	27.2		
Cognitive Status										
Probably cognitive impaired	1	0.6	2	1.3	5	3.2	3	1.9	33.02	.000***
Borderline cognitive impaired	1	0.6	0	0.0	11	7.1	6	3.9		
Normal cognitive	9	5.8	21	13.6	56	36.4	39	25.3		
Number of Medical Diseases Report										
1	11	7.0	12	7.8	11	7.1	11	7.1	17.18	.001***
> 2	0	0.0	11	7.1	61	39.67	37	24.0		
Functional Limitation										
Able to Perform	11	7.0	0	0.0	0	0.0	0	0.0	77.8	.000***
Need Assistance	0	0.0	13	8.6	43	27.9	28	18.2		
Not Able to Perform	0	0.0	10	6.3	29	18.8	20	12.9		
Total	11	7.0	23	14.9	72	46.7	48	31.1		

* p< 0.05 correlation is significant at the 0.05 level
** p< 0.01 correlation is significant at the 0.05 level
*** p< 0.001 correlation is significant at the 0.05 level