Quality of Life for Elderly with Mobility Impairment at Zagazig University Hospitals

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Abstract

Background Quality of life for elderly with mobility impairment has abroad approach, the quality of life for elderly with mobility impairment was affected generally low levels especially for the psychological, physical and social aspects, in total, only small number of elderly had high quality of life, **Aim of the study** was to assess the quality of life for elderly with mobility impairment. **Subjects and Methods: Research design**: Across- section descriptive design was used in this study to achieve its aim .**Setting:** the orthopedics and rehabilitation outpatient clinics affiliated to the geriatric unit at Zagazig university Hospitals**. Subjects**: a sample of 220 of elderly patients with mobility impairment. **Tools of data collection:** *First Tool***:** structure interview questionnaire, to collect the necessary basic data, *Second Tool:* scale for performance of Daily Life Activities (DLA) for elderly with mobility impairment, *Third Tool:* Functioning assessment scale, *Fourth Tool***:** Quality of life (QOL) scale**, Results** : statistically significant associations with all the domains and total of (QOL), The only exception was the psychological domain, which was not statistically significant**;** it also indicated that there were statistically significant relations between elderly's independence in DLA and all types of functional abilities. **Conclusion:** many areas of quality of life were not achieved by the patients, but some implementation steps were performed. **Recommendations:** Identify impairment and improving services for mobility aid, assistive mobility devices and rehabilitation programs.

Key wards: Quality of Life, Elderly ,Mobility ,Impairment.

Introduction:

Aging is a normal process that affects the body and all of its functions. It is typically associated with being "old" or reaching "older adulthood"; and people define aging in terms of personal meaning and experience [(1)].This process affects all the cells, tissues and organs of the body. Some people, however, or certain conditions, present with premature aging (dementia) causing organ failure due to impaired function[(2)]Changes appear slowly and over long period[(3).]

Mobility refers to the physical ability to move including all trips outside home, either by foot or by other means of transportation. It promotes health as it relates to basic human needs for physical movement[(4).] Mobility is essential for maintaining independence. For older adults, it is influenced by age-related changes to some extent, but risk factors play a much larger role. Falls and fractures are unfortunately common in old age[(5)] Thus, older adults have the dual challenge of maintaining mobility skills and avoiding falls and fractures for these reasons; safety is an integral aspect of mobility[(6).]

Impaired mobility can include any or all of inability to move about easily as others, limited movement of arms or legs, decrease in strength or control of the muscles and bones, abnormal or impaired coordination, and medical condition requiring bed rest[(7).]There are many types and levels of mobility impairment; some things that determine them area decrease of strength or endurance, the presence of pain or discomfort, and impaired ability to use the muscles [(8).]Mobility

impairments in older adults are a dynamic process characterized by frequent transitions between being independent and dependent on others [(9)].They may affect the Daily Living Activities (DLAs)[(10)],and have a negative impact on the quality of life (QoL) [(11)].

Significance of the Study:

Mobility impairment can have a significant impact in the everyday life. It can affect every physical movement even simple ones. The community health nurse plays an important role in helping the elderly about the using of the mobility aids which designed to assist walking or otherwise improving the mobility.

Aim of the study:

The aim of this study was to assess the quality of life (QoL) of elderly with mobility impairment.

Research Questions:

1. What are the causes and contributing conditions that lead to mobility impairment among elderly?
2. What is the effect of impaired physical mobility on the daily living activities?
3. Does mobility impairment affects the quality of life (QOL) of the elderly group?

Subjects and Methods:

Research design:

A Cross-sectional descriptive.

Study setting:

In the orthopedics and rehabilitation outpatient clinics affiliated to the geriatric unit at Zagazig University Hospitals.

Study Subjects:

The study included a convenience sample of 220 elderly who were fulfilling the following inclusion criteria, diagnosed as having mobility impairment with chronic diseases. Those with severe physical or mental illness not permitting to participate were excluded.

Tools of data collection:

Four tools were used to conduct:

Tool I: **Interview questionnaire form**, scales for the performance of the Daily Life Activities (DLA), functional abilities, and Quality of Life (QoL). The interview form included apart for socio-demographic data such as age, gender, residence, etc., a second part for medical history covering chronic diseases and medications, and a third part about the mobility problems of the patient. It involved questions about the causes of the problems, about knee pains, its characteristics, and management. The patient was also asked about the practice of regular physical exercise.

Tool II: The Scale for performance of the Daily Life Activities (DLA) for elderly with mobility impairment, Osman[(12)]was used to assess the dependence in DLAs. It covers 15 areas of activities as personal hygiene personal, toilet, bathing, shopping, food preparation, etc. The items are checked on a 4-point Likert scale from “Totally unable to perform” to “Totally independent in performing.”

Scoring system: These were scored from one to four respectively so that a higher score indicates more independence. The scores of the items were summed-up and the total divided by the number of the items, and converted into a percent score. The subject was considered independent in the performance of DLAs if the percent score was 75% or more and dependent if <75%.

Tool III: The Functioning assessment scale, Graf et al.,[(13)]was used to measure elderly’s functional abilities. It has five sections covering personal activities (7 items), senses activities (3 items), social interactions (3 items), mental activity (3 items), and normal activities (4 items).

Scoring system:

Each item in the scale has a three-response choice: Good, Weak, and Bad. These are scored from 3 to 1 so that a higher score indicates better functional ability. The scores of the items of each area and for the total scale were summed-up and the total divided by the number of the items, and converted into a percent score. The subject was considered to have high functional ability if the percent score was 60% or more and low if <60%.

Tool IV: The Quality of Life (QoL) scale was developed, Padilla and Grant[14] to measure the QoL of elderly with mobility impairment. It covers four different aspects of QoL, namely physical (17 items), psychological (10 items), social (11 items), and spiritual (7 items) QoL.

Scoring system:

The items are checked on a 3-point Likert scale: usually, sometimes, and never. These are scored from 2 to zero respectively. Scoring was reversed for negative items so that a higher score indicates better QoL. The scores of the items of each dimension and for the total scale were summed-up and the total divided by the number of the items, and converted into a percent score. The subject was considered to have high QoL if the percent score was 60% or more and low if <60%.

Content validity and Reliability:

Upon completion of the preliminary form of the data collection tools, they were presented to a panel of seven experts from the Community Health Nursing and Geriatric Nursing departments, in addition to medical staff. They reviewed the tools for relevance, comprehensiveness and understandability. The tools were modified according to their comments and suggestions.

Fieldwork:

After obtaining all official permissions, the researcher met with the elderly patients to clarify the objective of the study and its procedures, and asked for their consent to participate. Those who agreed were interviewed individually using the data collection forms. The work was done during participants' visits to the study setting. The time taken for each questionnaire to be completed was between 30 and 45 minutes for every subject. The fieldwork lasted for seven months from December 2014 to June 2015.

***Pilot study*:**

A pilot study was carried out on 20 elderly from the same setting, representing approximately 10% of the main study sample. Its purpose was to test the applicability and clarity of the tools. The tools were modified according the results of the pilot, and then finalized. The pilot subjects were not included in the main sample of the study. The pilot also served to assess the reliability of the scales used through testing their internal consistency. They proved to have good levels of reliability with high Cronbach alpha coefficients: DLA scale (0.982), Functioning scale (0.923), and QoL scale (0.564).

Administrative and Ethical consideration:

Official approval to conduct the study was obtained from the pertinent authorities. The study protocol was approved by pertinent committees in the Faculty of Nursing. The consent for participation was taken orally from each elderly after explaining the aim of the study to him/her. They were informed about their right to refuse or withdraw and they were reassured that the information would utilized confidentially and used for the research purpose only.

***Statistical analysis*:**

Data entry and statistical analysis were done using SPSS 20.0

statistical software package. Cronbach alpha coefficient was calculated to assess the reliability of the developed tools through their internal consistency. Spearman rank correlation was used for assessment of the inter-relationships among quantitative variables and ranked ones. In order to identify the independent predictors of the scores of DLA, QoL, and functional ability, multiple linear regression analysis was used and analysis of variance for the full regression models was done. Statistical significance was considered at p-value <0.05.

Results

Table 1: shows demographic characteristics of the elderly s in the study sample according to the table (44.5%) of the sample were in the age category 71-80 years, with slightly more males (51.4%), and with rural residence (55.0%). Approximately two-thirds were currently unmarried (68.2%) whether single, divorced, or widows. The majority had no formal education with 41.8% illiterate and 34.1% just able to read and write. Only about one-third (30.5%) were currently working. The majority (92.7%) were living in houses with crowding index less than one person per room. Those with insufficient income constituted approximately two-fifth of the sample (38.6%). Approximately one-half of the sample (45.0%) were in the low socio-economic level, whereas only 15.0% were in the high class.

Table 2 : demonstrates that the majorities of the elderly in the sample (90.0%) was having chronic diseases, and were on regular medication (78.8%). Approximately two-thirds were having knee pain (67.3%), and this was mostly continuous (66.2%). The most common pain characteristics were burning (64.1%) and tingling (58.6%), whereas spasm was the least (13.6%). As for management, rest and hot fomites were the most commonly used methods (94.5%). However, the great majority used all other types of management. Almost all elderly were using non-prescription treatments (96.4%). These were mostly hot/cold compresses (60.4%). Only 21.4% of the sample were practicing exercise regularly.

Table 3 : demonstrates that only less than one-fourth of the elderly in the study sample were having a mild grade of impairment (23.6%). The majority were almost equally distributed between moderate and severe grades. Slightly less than one-half (45.9%) of the elderly were independent in performing Daily Life Activities (DLAs). Elderly's functional abilities were best for personal hygiene (65.9%), and worse for social interactions (35.0%). Overall, approximately two-thirds of them were having good total functional abilities (65.5%). As for the Quality of Life (QoL), the table demonstrates generally low levels, especially for the psychological (16.4%) and physical (18.2%) aspects. In total, only 15.5% of the elderly had high QoL.

Table 4: indicates the presence of a statistically significant strong positive correlations between elderly's functioning and independence in DLA scores (r=0.861). It also demonstrates statistically significant moderate positive correlations between elderly's QoL scores and their functioning and independence in DLA scores. Meanwhile, the score of physical exercise has statistically significant weak positive correlations with elderly's scores of independence in DLA and QoL.

Table 5 : shows that elderly's age had statistically significant weak negative correlations with their scores of DLA, functioning, QoL, and physical exercise. Conversely, their income and socio-economic level had statistically significant weak positive correlations with these scores. Meanwhile, education had statistically significant

weak positive correlations with the scores of QoL and physical exercise.

Table 6: In multivariate analysis elderly's female gender, current married status, current employment, and exercising were identified as statistically significant positive independent predictors of the DLA score. Conversely, having a knee problem was a negative predictor. The model explains 26% of the variation in DLA scores as indicated by the value of r-square.

As regards the regression model for the functioning score, having own income and a higher DLA score were the statistically significant positive independent predictors of this score. On the other hand, the level of education was a negative predictor. The model explains 73% of the variation in functioning scores as indicated by the value of r-square. Lastly, the level of education, duration of illness, and functioning score were statistically significant positive independent predictors of the QoL score. The model explains 46% of the variation in QoL score as indicated by the value of r-square.

Discussion :

Population aging poses greater demands for health services, Yekta, et al.[15]. For older adults, mobility problems are common, and would have a negative impact on their Quality of Life (QoL) particularly among those with multi-morbidity, Quah et al.[16]. The aim of this study was to assess the quality of life for elderly with mobility impairment. The study findings indicate generally high prevalence of mobility impairments associated with high dependence in Daily Life Activities (DLA), and generally low Quality of Life (QoL) among the majority of the elderly persons under study.

The present study sample consisted of a group of elderly mostly in the sixth and seventh decades of life, with slightly more males. The slightly higher percent of males could be explained by their more apprehension about their health and their keenness to improve their functioning to be able to be self-dependent. Therefore, they might be over-represented in a sample recruited from a geriatric clinic. A similar difference was revealed in a large study in the United States, where a sex-difference was revealed, with more frailty among male elderly, Bartley et al.[17]. The elderly in the present study had generally low socio-economic levels, and a high percent had insufficient income. Thus, approximately one-half of them were in the low socio-economic level. This would also have its negative repercussions on elderly health and health behaviors. Similar low socio-economic levels were reported among the elderly in studies in Egypt, Fadia[18] and in Bangladesh ,Kunal[19].

According to the results of the current study, the majority of the studied elderly had chronic diseases, and was on regular medications. The locomotor system problems were the most common ones, where approximately two-thirds of them were complaining of knee pain, which was mostly continuous. This is undoubtedly related to osteoarthritis, which is a common disease of aging. In congruence with this Choeetal[20], found that the prevalence of osteoarthritis around the knee among elderly persons in Korea reached more than 55%. On the same line, a study in six European countries revealed a prevalence rate of osteoarthritis of any site reaching 30.4% among elderly, Castell et al. [21],Moreover, a study in Italy demonstrated a high prevalence of osteoarthritis among elderly, especially in the knee joint. The study highlighted that osteoarthritis- related pain increased the risk of physical inactivity, disability, and falls, in addition to increasing the risk of frailty, Veronese et al.[22].

The present study elderly most commonly described their pain as burning and tingling, and to a less extent as pain related to movement. The burning and tingling pain could be

related to peripheral neuropathy, which is common in the elderly, especially those affected with diabetes mellitus as reported by Jones et al.[23], in a study carried out in the United States, and by Hanewinckel, et al., [24], in a study in the Netherlands. Meanwhile, the pain related to movement is the one due to osteoarthritis, and is the main type of pain that could have a negative impact on their mobility. In agreement with this, a study in Japan demonstrated that almost a half of the elderly in the sample were having pain related to movement, and this was associated with lower perception of health, and negative impact on the QoL Takai, et al.[25], On the same line, a study in Brazil reported that more than half of the elderly were having pain, and this was associated to low perception of health, Periera, et al.[26].

Concerning the management of pain, almost all elderly of the present study used all types of approaches such as rest and hot fomites, local applications, as well as medications. However, in many instances, the medications were used without prescription, which could decrease their effectiveness and even lead to untoward side effects and drug interactions given that most of these elderly persons are on regular medications. The finding is in line with Hoshang.[27], whose study in the United Kingdom revealed that all elderly having knee pain and osteoarthritis were taking analgesics, and using bed rest and hot compress and ointments to relieve their pains. Moreover, the use of multiple approaches in the management of pain as revealed in the present study may indicate the failure of treatment among these elderly. They are actually trying anything to relieve their pain, as also reported by Ashock.[28]in Malaysia.

The present study assessed the functional abilities among the elderly. The results indicate good total functional abilities among about two-thirds of them. Moreover, more than half of them were independent in the performance of their Daily Life Activities (DLA). This demonstrates that the pain they are complaining of is not very severe so that it negatively influences these abilities. Similar findings similar were reported by Muszalik, et al.[29], in a study in the Netherlands where the majority of the participants had high and medium levels of functional capability.

Although one-half or more the elderly in the present study had good functioning and were independent in the performance of their DLAs, the great majority of them had low Quality of Life (QoL). This could be explained by the feelings of loss of abilities, which would prevent them from achieving what they were used to achieve. However, half of the elderly had high spiritual QoL. This is expected since at this age people feel the necessity to get closer to religion, with the feeling that the end of life is approaching. Thus, many of them get more involved in religious practices, which would improve their related QoL. In agreement with Thisgaliani, et al.[30], in a study in Spain highlighted that spirituality plays a key role in the improvement of health and QoL in the elderly. Moreover, a study in Iran identified spiritual growth as a significant predictor of improved QoL among the elderly Rakhshani et al. [31].

Concerning the factors influencing the independence of the elderly to perform DLAs, the present study multivariate analysis identified female gender, married, currently working, and exercising, and having no knee problems as the significant ones. These factors, whether personal or health-related, if present are expected to improve independence. The female gender is explained by the fact that women are usually responsible for most DLAs, and thus are used to perform them more easily compared to men. In agreement with these findings, a study in Turkey demonstrated that the scores of independence in the performance of DLAs had significant positive associations with younger

age, female gender, and educational level, Sahinetal.[32],

As regards the factors significantly related to elderly functioning abilities, in the present study in multivariate analysis, only having own income and a higher DLA score were significant positive independent predictors, whereas the level of education was a negative predictor. The lack of significant effect of the other personal and health-related factors could be attributed to the close relation between the scores of functioning and independence in DLAs. In fact, the present study identified a significant strong positive correlation between functioning and independence in DLA scores. Similar findings were reported by Baier, et al.[33], in a study in Germany and by Borda, et al.[34], in Bogota, Colombia. As for the factors influencing the QoL of the elderly in the present study, the multivariate analysis showed that only the level of education, duration of illness, and functioning score were significant positive independent predictors of the QoL score. These are plausible factors since a higher level of education is known to be associated with a better score of QoL. In congruence with this, a study in Brazil demonstrated a significant association between elderly QoL and their level of education, Cameloldo, et al.[35].

Conclusion :

From the study findings, it is concluded that most elderly in the study sample have low socioeconomic level and have chronic diseases and knee pains, with moderate to severe grades of impairment. This leads to dependence in their Daily Life Activities (DLA), although having good total functional abilities, and is reflected in a low Quality of Life (QoL) among the majority. The personal variables indicating low socio-economic levels and ill health, in addition to age negatively affect independence, functioning, and QoL.

Recommendations :

In the light of the study findings, the study recommends that

- Encouraging elderly people to be self-dependent in performing DLAs is particularly important for those in beyond the seventies, males, unmarried, and having low educational level.
- Further research is proposed to investigate the effectiveness of health educational and promotional interventions in improving elderly QoL and functional abilities.

Table 1: Demographic characteristics of the elderly s in the study sample (n=220)

Demographic characteristics	Frequency	Percent
Age:		
61-70	90	40.9
71-80	98	44.5
81+	32	14.5
Gender:		
Male	113	51.4
Female	107	48.6
Residence:		
Urban	99	45.0
Rural	121	55.0
Current marital status:	150	68.2
Unmarried (single/divorced/widow)		
Married	70	31.8
Education:		
Illiterate	92	41.8
Read/write	75	34.1
Basic/intermediate	42	19.1
University	11	5.0
Current job:		
Unemployed	153	69.5
Working	67	30.5
Crowding index:		
<1	204	92.7
1+	16	7.3
Have own income source:		
Yes	179	81.4
No	41	18.6
Income:		
Insufficient	85	38.6
Sufficient	70	31.8
Saving	65	29.5
Socio-economic status:		
Low	99	45.0
Middle	88	40.0
High	33	15.0

Table 2: Medical history of elderly in the study sample (n=220)

Medical history	Frequency	Percent
Have chronic disease:	198	90.0
Have regular medications	156	78.8
Have knee pain:	148	67.3
Knee pain:		
On movement	10	6.8
With spasms	19	12.8
On pressure	21	14.2
Continuous	98	66.2
Pain characteristics:		
Burning	141	64.1
Tingling	129	58.6
Pain with movement	79	35.9
Transient immobility	32	14.5
Spasm	30	13.6
Duration of illness (years):		
<5	57	28.8
5-	115	58.1
10-	18	9.1
15+	8	4.0
Management of pain:		
Rest	208	94.5
Hot fomites	208	94.5
Ointments	204	92.7
Injections	201	91.4
Oral analgesics	200	90.9
Take non-prescription treatments:		
No	8	3.6
Yes	212	96.4
Non-prescription treatments:		
Hot/cold compresses	128	60.4
Medications	39	18.4
Physiotherapy	30	14.2
Rest	19	9.0
Practice regular physical exercise:	47	21.4

Table 3: Grade of impairment, performance of Daily Life Activities (DLA), functioning, and Quality of Life (QoL) among elderly in the study sample (n=220)

Grade of impairment	Frequency	Percent
Grade of impairment:		
Mild	52	23.6
Moderate	83	37.7
Severe	85	38.6
Daily life activities (DLA):		
Independent (75%+)	101	45.9
Dependent	109	54.1
Good functional abilities (60%+):		
Personal hygiene	145	65.9
Senses	131	59.5
Social interactions	77	35.0
Mental	95	43.2
Elimination	118	53.6
Total:		
High (60%+)	144	65.5
Low	76	34.5
High QoL (60%+):		
Physical	40	18.2
Psychological	36	16.4
Social	75	34.1
Spiritual	103	46.8
Total QoL:		
High (60%+)	34	15.5
Low	186	84.5

Table 4: Correlation matrix of DLA, functioning QoL, and physical exercise scales scores

Scores of:	Spearman's rank correlation coefficient			
	DLA	**Functioning**	**QoL**	**Physical exercise**
DLA				
Functioning	.861**			
QoL	.653**	.689**		
Physical exercise	.168*	0.13	.151*	

(*) Statistically significant at p<0.05 (**) Statistically significant at p<0.01

Table 5: Correlation between DLA, functioning QoL, and physical exercise scales scores and patients' characteristics

Characteristics	Spearman's rank correlation coefficient			
	DLA	Functioning	QoL	Physical exercise
Age	-.227**	-.265**	-.136*	-.147*
Education	0.12	0.09	.219**	.274**
Income	.148*	.203**	.192**	.164*
Socio-economic level	.241**	.244**	.244**	0.12

(*) Statistically significant at p<0.05 (**) Statistically significant at p<0.01

Table 6: Best fitting multiple linear regression model for the DLA score

	Unstandardized Coefficients		Standardized Coefficients	t-test	p-value	95% Confidence Interval for B	
	B	Std. Error				Lower	Upper
DLA score							
Constant	10.30	9.21		1.119	0.265	-7.86	28.46
Female gender	8.66	2.94	0.21	2.949	0.004	2.87	14.45
Married	6.13	3.13	0.14	1.959	0.052	-0.04	12.30
Employed	6.12	3.01	0.14	2.032	0.044	0.18	12.06
Have knee problems	-8.80	2.95	-0.19	2.986	0.003	-14.61	-2.99
Exercising	22.34	4.98	0.29	4.490	<0.001	12.53	32.16
r-square=0.26 Model ANOVA: F=12.248, p<0.001							
Variables entered and excluded: age, education, income, residence, comorbidities, duration of illness, frequency of seeking care							
Functioning score							
Constant	38.17	2.34		16.342	<0.001	33.56	42.77
Education	-1.06	0.47	-0.09	-2.245	0.026	-2.00	-0.13
Have own income	2.20	0.61	0.14	3.585	<0.001	0.99	3.41
DLA score	0.48	0.02	0.78	19.951	<0.001	0.44	0.53

r-square=0.73 Model ANOVA: F=137.456, p<0.001

Variables entered and excluded: age, sex, job, residence, socio-economic level, comorbidities, duration of illness, frequency of seeking care, exercise

	QoL score						
Constant	-3.32	3.34		-0.995	0.321	-9.90	3.26
Education	2.13	0.48	0.25	4.483	<0.001	1.20	3.07
Duration of illness	1.62	0.68	0.13	2.376	0.018	0.28	2.97
Functioning score	0.44	0.04	0.63	11.978	<0.001	0.37	0.51

r-square=0.46 Model ANOVA: F=43.687, p<0.001

Variables entered and excluded: age, sex, job, residence, income, socio-economic level, comorbidities, frequency of seeking care, exercise

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