

Compliance among a group of Egyptian elderly in Cairo

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Abstract

Background: adherence represents significant challenges to healthcare professionals especially among elderly.

Aim: The study aimed to compare compliance among elderly in nursing homes and community dwelling..

Methods: This cross-sectional study was conducted on the elderly of community dwelling (n = 200) and nursing homes (n = 200) in Cairo, Egypt. The study data were collected between February 2017 to February 2018. For data collection, Medication Assessment Questionnaire (MAQ) was used. The data were evaluated with SPSS for 22.0 Windows statistical package program. Data descriptive statistics were evaluated with independent t test and the chi-square test.

Results: The majority of participants of the 2 groups are at age 60-70 years. According to the study results, most of the participants in the 2 groups are medium adherent.

Conclusions: there is no difference in adherence between community dwelling and nursing homes elderly.

Keywords: adherence, compliance, Egyptian elderly, elderly

Background

Adherence was defined by WHO as “the extent to which a person’s behavior (taking medication, following a diet, and/or executing lifestyle changes) corresponds with agreed recommendations from a health care provider”.¹ It also stated that more than fifty percent of the drugs prescribed, dispensed or sold worldwide were used in a wrong way.²

Adherence and compliance are often used interchangeably but there is difference between these two terms which make adherence is the preferred terminology by some authors: adherence emphasizes the patient-provider relationship, requires motivation and competence on behalf of the patient, allows for open dialogue and addresses underlying reasons contributing to non-adherence, and continued follow-up is an essential component of the plan. While compliance deals with patient in a parental way and does not incorporate a “therapeutic relationship”, represents actual adoption of lifestyle change behaviors

and medication-taking, focuses on what the patient is “told to do” and whether they comply or not, and does not incorporate follow-up to assess patient progress.³ In the literature, the rates of non-adherence around the world range from 7.1 to 66.2% as adherence represents significant challenges.⁴ The rate of medication adherence at a range of 38–57% with an average rate of less than 45% in older Populations.⁵ As 33 - 50% of patients do not adhere to their medication regimens as prescribed.⁶ Furthermore, one-half of filled prescriptions in daily clinical practice are incorrectly taken.⁷ Non adherence to hypertensive treatment was 9.0% in United States and Scotland, 54.2% in Palestine, 47.5% in Taiwan, 47.0% in Saudi Arabia, 64.7% in Pakistan, 55.8% in Malaysia, 35.4% in Ethiopia, 73% in Gambia and 25.9% in Egypt^{9,8}. WHO reported that average rate of adherence is around 50% in chronic patients in developed countries and expected to be lower in developing countries.¹ In Egyptian diabetic

patients only 38.9% were adherent to their oral hypoglycemic drugs, Moreover, lowest rate of adherence was reported in elderly patients 28.1% than other age groups.¹⁰ Egyptian patients with asthma and COPD, adherence rates were 8.5% and 7% respectively.¹¹ Medication non-adherence costs as much as \$100 billion per year in the United States.¹²

Adherence measures can be classified as subjective and objective or as direct and indirect. Both categories are not different in achieved outcomes, they are only different in the method of collecting information. The subjective method relies on provider's or patient's reporting of their medication-taking behavior but patients tend to give false answers to avoid disapproval by the health care provider. While the objective method depends on biochemical measures, electronic monitoring, pill counting and secondary database analysis which is considered a better method than subjective measures.¹³

Direct method includes measuring the drug or its metabolite in body fluids, such as urine or blood, measuring the biologic marker of the drug and direct observation of patient's medication-taking behavior. This makes this method most accurate but don't provide any information about the pattern of the non-adherence or what causes it, patients can hide their pills under tongue and throw them later, expensive, difficult to perform and patient feeling anxious which leads to "white coat adherence" which means improved patient adherence to treatment around clinic visits.¹⁴

Indirect method includes patient questionnaires, self-reports, pill count, pharmacy refill records, assessment of the patient's clinical response, electronic medication monitors, measurement of physiological markers (as heart rate in patients on beta-blockers) and patient diaries.¹⁵

The drawbacks of indirect methods are that their results can be easily altered by the patient, pill count is unreliable due to "pill dumping" which takes place by the patients when the physician suspects non-adherence, pharmacy records not indicator to ingestion of medication and needs a closed pharmacy system, clinical response can be affected by other factors, electronic methods are expensive and mandate follow up visits and downloading data from medication vials and other reasons can affect the level of physiological markers. Although particular methods of adherence measures may be preferred in specific clinical or research settings, the best way is to combine more than one method to maximize accuracy.¹⁶

Advantages of patient self-reports are brief, cheap, acceptable to patients, easy to administer, valid, non-intrusive, can distinguish between different types of non-adherence, and able to provide information on attitudes and beliefs about medication. Different nature of the diseases, makes no gold-standard scale for measuring medication adherence, but the best known and most widely used is a Medication Adherence Questionnaire (MAQ) which is the shortest, easiest to

score and very adaptable for different groups of medication.¹⁷our aim in this study is to compare compliance among elderly in nursing homes and community dwelling.

Methods

A cross-sectional Study where data was collected between February 2017 to February 2018.

Study setting: Elderly living either at community dwelling (outpatient geriatric clinic at Ain Shams University Hospital and El Shams sporting club) or in nursing homes in Cairo (n = 200).

Sampling and sample size: In determining the sample size for the elderly, it was found to be 400 elderly putting in consideration proportion of persons $50\% \pm 5$ at 95% C.I using Epi Info7 program. It was divided to 200 participants from nursing homes and 200 participants from community dwelling (100 participants from the outpatient geriatric clinic and 100 participants from geriatric club).

No sampling method was used for sample selection of the elderly living in the nursing homes. Anyone agreed to participate in the study was included (n = 200). Similarly, the elderly attending the sporting club every Monday of the week for social activities were included (n = 100). While the participants of the geriatric outpatient clinic were selected by including every 3rd participant -which was randomly selected- attending every day of the week (n = 100).

Data were collected through face-to-face interviews with the individuals during visits to geriatric outpatient clinic, club and 6 nursing homes. In addition, individuals were verbally informed of the study.

Inclusion criteria: Individuals aged 60 and over.

Exclusion criteria: Any elderly with dementia or any mental disease, with severe psychological problems, or totally dependent elderly on a caregiver in taking his/her medication was excluded from the study and those who did not want to participate in the study.

Study tools: Every participant was subjected to extraction sheet containing demographic data (age, gender), socioeconomic data (pre-retirement occupation, social status, monthly income) and educational level. Mini Mental State Examination (MMSE) Arabic version¹⁸, Geriatric Depression Scale (GDS 15)¹⁹, Activity of Daily Living(ADL)²⁰ and Instrumental Activity of Daily living(IADL)²¹. For evaluation of medication adherence, a validated interview questionnaire "the Morisky, Green, and Levine (MGL) Adherence Scale" or "Medication Assessment Questionnaire (MAQ)"²² which consists of 4 questions having a binary answer. Each "no" response is rated as 1 and each "yes" response is rated as 0. Participants are classified as low adherent if they have 0-1 points, medium adherent if they have 2-3 points and high adherent if they have 4 points. Using this tool was approved by professor Morisky through e-mail communication.

Statistical analysis: The statistical analysis of the research was performed with the SPSS 22.0 package

program. Descriptive statistics were carried out for all variables and expressed as mean and \pm SD for quantitative data, whereas qualitative data were expressed as numbers and percentages. For quantitative data: comparison between groups' mean age was done by using independent t test while for qualitative data: comparison between groups' categories levels was done using chi-square test. A P value of ≤ 0.05 was chosen as a level of significance and ≤ 0.01 as a level of high significance.

Results

Regarding sociodemographic data of the participants; the majority of the participants were at 60-70 years old (73.5% in community dwelling and 51.5% in nursing homes) with higher mean age among nursing home participants 71.4. Females represent the majority of our sample with higher percent among nursing home participant. Regarding the social status, the majority of community dwelling participants were married 110(55%) while the majority of nursing home participants were widows 115(57.5%). In both groups the majority were ex-employee (54.3%,41%), non or ex-smokers (88.5%,81%), and had university education (29.5%,38%) in community dwelling and nursing homes respectively. The monthly income of the majority of nursing home participants (3000-<4000 EP) (28.5%) was higher than that of community dwelling participants (<1000 EP) (23%) (Table 1,2).

Table 1: Age distribution among all participants: group 1 (community dwelling) and group 2 (nursing homes)

Age (years)	Group 1	Group 2	P value
60-70	147 (73.5%)	103(51.5%)	0.000*
70- 80	52 (26%)	66(33%)	
>80	1 (0.5%)	31(15.5%)	
Mean \pm SD	68.04 \pm 5.3	71.43 \pm 8.5	

Table (3): Medication Assessment Questionnaire (MAQ) categories for adherence in all participants

MAQ categories	N	%
Low adherence	139	33.8%
Medium adherence	171	41.6%
High adherence	90	21.9%

Regarding drug adherence; The majority of our participants in both groups 171(41.6%) were medium adherent followed by 139 (33.8%) low adherent and the least 90 (21.9%) was high adherent (Table 3).

Table (2): Socio-demographic characteristics among the participants in both groups

Items	Group 1		Group 2		Total	P*	
	Number	Percent	Number	Percent			
Gender	Male	90	45%	56	28%	.000*	
	Female	110	55%	144	72%		
Social Status	Single	1	0.5%	15	7.5%	.000*	
	Married	110	55%	38	19%		
	Widow	79	39.5%	115	57.5%		
	Divorced	10	5%	32	16%		
Pre-retirement occupation	Housewife	49	24.6%	77	38.5%	.006*	
	**Skilled job	25	12.6%	17	8.5%		
	***Employee	108	54.3%	82	41%		
Educational level	Private sector	17	8.5%	24	12%	.038*	
	Illiterate	48	24%	40	20%		
	Read and write	33	16.5%	16	8%		
	Primary/preparatory	21	10.5%	22	11%		
	Secondary/technical school	37	18.5%	46	23%		
University		59	29.5%	76	38%	135	
	Post graduate	2	1%	0	0%		2
Smokers		23	11.5%	38	19%	61	.037*
Non smokers		177	88.5%	162	81%	339	
Monthly income	<1000 EP	46	23%	8	4%	54	.000*
	1000-<2000 EP	38	19%	48	24%	86	
	2000-<3000 EP	40	20%	32	16%	72	
	3000-<4000 EP	33	16.5%	57	28.5%	90	
	4000-<5000 EP	16	8%	23	11.5%	39	
5000 EP or more	27	13.5%	32	16%	59		

*P value was calculated using chi- square.**like tailor, mechanic, carpenter, electrician, driver .

***Governmental job

Table (4): Comparison between the 2 groups; group 1 (community dwelling) and group 2 (nursing homes) regarding their MAQ categories

MAQ categories	Group 1	Group 2	P*
Low adherence	67 (33.5%)	72 (36%)	.775
Medium adherence	89 (44.5%)	82 (41%)	
High adherence	44 (22%)	46 (23%)	

In table 4 there was no significant difference regarding adherence between community dwelling participants and nursing homes participants.

In assessing the questions of Medication Assessment Questionnaire (MAQ); each “no” answer reflects good adherence. The answers of the question (Do you ever forget to take your medicine?) were significant better answer “no” among community dwelling participants 104 (52%) compared to that of nursing homes participants 122(30.5%), but the majority of the 2 groups 62.5-53% answered “no” to the question (Are you careless at times about taking your medicine?) with better significant difference among community dwelling participants. Regarding the question (When you feel better, do you sometimes stop taking your medicine?) both groups participants answered “yes” 60.5-58.5% but without significant difference between them. On the contrary both groups participants 53-65.5% answered “no” to the question (Sometimes if you feel worse when you take the medicine, do you stop taking it?) with better significant difference in community dwelling participants (table 5).

Table (5): Comparison between the 2 groups; group 1 (community dwelling) and group 2 (nursing homes) regarding their MAQ items

MAQ items		Groups		P*
		Group 1	Group 2	
Item 1	Y	96 (48%)	78 (39%)	.043*
	N	104 (52%)	122 (30.5%)	
Item 2	Y	75 (37.5%)	94 (47%)	.034*
	N	125 (62.5%)	106(53%)	
Item 3	Y	121 (60.5%)	117 (58.5%)	.380
	N	79 (39.5%)	83 (41.5%)	
Item 4	Y	75 (37.5%)	94 (47%)	.034*
	N	125 (62.5%)	106 (53%)	

*P value was calculated using chi- square.

Discussion

In the study, it was found that the mean age among nursing home participants was higher as they need more care than younger elderly which can be offered by nursing homes. The majority of our participants were females as they were more cooperative and willing to participate in the study. Also the majority of nursing home participants were widows and in the literature there are studies indicating that the elderly who lost their spouses or who are still single prefer to stay in nursing homes either because they do not want to live alone or because they have been left alone.^{23,24} The higher monthly income of the majority of nursing home participants is understandable as living in a nursing home costs the elderly more money.

The majority of the elderly were medium adherent, low, and high adherent which is the same finding by **Rajpura and Nayakand** and considered unsatisfying result but lack of adherence is contributed to different factors and that necessitates the importance of more assessment of adherence predictors in the Middle East²⁵ This was not in line with the finding of a cross sectional study done on self-neglect elderly to determine whether medication regimen complexity predicts medication adherence levels, in which the majority of the participants were low adherent followed by medium adherent and no participant was high adherent. This difference in results may be due to using the Morisky Medication Adherence Scale (MMAS-8) - in the latter study- which has different categorical scores and the participants were specifically chosen self-neglect.²⁶

The better significant answers of the community dwelling participants in 1st question of MAQ questionnaire was expected as their mean age is lower making memory dysfunction less evident. While, the insignificant difference in the answer of the 3rd question between the 2 groups indicates indicating incorrect medication taking behavior in response to improvement to their medications. On the contrary better significant difference in community dwelling participants’ answers to 4th question was expected as half of them (100) were interviewed in outpatient clinic seeking medical care with better medical information.

Conclusion:

Although there was no difference in adherence between community dwelling and nursing homes elderly but their medication adherence was not satisfying which necessitates using appropriate, effective intervention to improve medication adherence especially among elderly as they have several sensory, motor and intellectual dysfunctions.

The Middle East lacks information about medication adherence in general and specifically in elderly and that mandates more studies to be carried out in such field.

Conflict of Interests

The author has no conflict of interests to declare regarding the publication of this paper.

Study limitations:

There were difficulties in getting the approval of the administration of many nursing homes (either governmental or private) to participate in the study even after knowing that this study is not related to any governmental institution or any media.

The question about the monthly income made a number of participants uncomfortable to answer which may affect their honesty in giving the true answer and hence this question was postponed to be asked at the end of the interview.

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