The Drug Compliance and Factors Influencing Therapeutic Regimen among Senior Citizen

Regina Antony[1], Shali Mol U.S[.2], Revathy R. Nair[3], Rintu Thomas[3]

[1]Associate Professor, HOD, Department of Foundations of Nursing, [2]Assistant Professor, Department of Foundations of Nursing, [3]Fourth Year B.Sc. Nursing Students, Amrita College of Nursing, Amrita Vishwa Vidyapeetham, Kochi, Kerala, India

Abstract

Background of the Study: One of the serious consequences in older patients is drug noncompliance. Nearly 40% to a high of 75% is estimated as the extend of noncompliance in the elderly .The aim of present study is to determine the compliance level and to identify the factors influencing the therapeutic regimen among senior citizen.

Materials and Method: Quantitative approach with non-experimental descriptive design was used. A modified Morisky Medication Adherence Scale (MMAS) and modified WHO's Adherence Model tool was used to assess the level of compliance and to identify the factors influencing the therapeutic regimen among the 409 subjects in Amrita Institute of Medical Sciences, Kochi (AIMS).

Result: The study results showed that among 409 subjects,all were on medications and were between the age group from 60 – 76 yrs and above, 210 (51.3%) subjects were male and 199(48.7%) subjects were female,majority of the subjects 338(82.8%) were married the educational status of the subjects were 113(27.6%) had primary education and 160(39.1%) subjects had secondary education, nearly 228(55.7%) subjects were unemployed and 119(29.1%) subjects were retired 65(15.9%) subjects had good compliance however, 295(72.1%) subjects had moderate compliance and 49 subjects (12%) were identified with poor compliance to therapeutic regimen. There was significantly high association between education(0.002), income (0.043) and level of compliance ($p<0.05$), but there was no significant association between level of compliance and other demographic variables.

Conclusion: The level of compliance among the elderly were good among highly educated elderly and of high economic status.

Keywords: *Drug compliance, Therapeutic regimen, Senior citizen.*

Introduction

Aging is inevitable and universal. According to Indian Maintenance and Welfare of Parents and Senior Citizen Act, "a senior citizen" is defined as any person being a citizen of India who has attained the age of 60 ages or above [1]. According to Population Census 2011 there are nearly 104 million elderly persons in India.53 million females and 51 million males. A report released by the United Nations Population Fund and Help Age India suggests that the number of elderly persons is expected to grow to 173 million by 2026. Both the share and size of elderly population is increasing over time. From 5.6% in 1961 the proportion has increased to 8.6% in 2011. For males it was marginally lower at 8.2% while for females it was 9.0%. As regard to rural

Corresponding Author:
Regina Antony
Associate Professor, Department of Foundations of Nursing, Amrita College of Nursing, Amrita Vishwa Vidyapeetham, Kochi-682041, Kerala, India
e mail: reginaantony@aims.amrita.edu
Phone: 9446190836

and urban areas, 71% of elderly population resides in rural areas while 29% in urban areas[2]. Health problems are supposed to be major concern of this section of the society and it is estimated that one out of two elderly in India suffers from at least one chronic disease which requires lifelong medication[3].

Patient compliance with medical regimen is a behavioral problem of interest because it affects the patient's health. Noncompliance in some instances could result in serious complication requiring the individual to be hospitalized. Thus not only adds considerable physical strain and mental agony to the individual and the family but results in economic burden as well [4].

R Shruthi, R Joythi H P Pundarikaksh, GN Nagesh and T G Tushar conducted a descriptive study regarding medication compliance in geriatric patients with chronic illness at tertiary care hospitals (2016) among 251 geriatric patients at Kempegowda Institute of Medical Science Hospital and Research Centre, Bangalore. The study findings revealed that the average number of medications 2.96 +_ 1.42 per subject and most of the subject were receiving Fixed Drug Combination's (FDC's). The compliance level was assessed by way of interview using a 20 item structured pretest questionnaire as per modified MMAS (Morisky Medication Adherence Scale)[5]. The factors identified from the studies and reviews are into several categories, namely, patient centered factors (such as age and gender), therapy related factors (e g: the complexity of regimen), health care system factors (such as the number of contacts with a health care provider), social and economical factors, and disease factors. Elderly patients may also have problems in vision, hearing, and memory. In addition they may have more difficulties in following therapy instruction tablets, distinguishing color or identifying marking on drugs, side effects or reactions from the drugs [6] . The growth of the aging population poses various health-related issues. Among them, non-compliance with drug prescription is identified as a potentially life-threatening problem (Stewart & Cluff, 1972). In addition, physiological, pharmacological, and pharmacokinetic changes in old age (Gainsborough & Powell-Jackson, 1990; Williams & Lowenthal, 1992; Offerhaus, 1997) contribute to an increase in the incidence of adverse reactions (Gryfe & Gryfe, 1984; Frattura et al., 1989; Lee, 1996) associated with the absence of both a health education process (OMS, 1994) and a pharmacotherapeutic follow-up, with potentially serious consequences for the patient. This is a complex and multidimensional problem that merits participation by all segments of society involved with drugs[7] .

Drug compliance and its determinants is complex and are often poorly understood. There is not much published Indian/Kerala studies that have estimated the prevalence of antihypertensive drug compliance in the community setting[8].

Materials and Method

A quantitative approach and a non-experimental descriptive design was used for the study conducted in Geriatric OPD and General Medicine ward of Amrita Institute of Medical Sciences and Research Centre, a tertiary care centre hospital, Kochi among 409 subjects using convenient sampling technique. The patient selected according to the inclusion criteria for study were senior citizen on medication, who were able to read and write English or Malayalam. All the patients' were informed about the aim of the study and an informed consent wasobtained from each subject . Data was collected by using Tool I - Semi-structured Questionnaire consists of two sections. Section I :- Socio-demographic data and Section II :- modified Morisky Medication Adherence Scale,to assess the subject's complaince and Tool II - WHO's Adherence Model, to assess the factors affecting complaince. The MMAS has 8 item with 2 response format yes-1, no-0 Scoring was categorized into 3, good compliance = 0-2, moderate compliance = 3-5, low compliance = 6-8 Adherence Model consist of 41 yes/no type questions organized under 7 domains. Data analysis was done by using descriptive and inferential statistics.

Result

Section I: Description of sociodemographic variables of the subjects: The demographic characteristics showed that among the 409 subjects, 129 (31.5%) subjects belonged to the age group of 60-65 years, 210 (51.3%) subjects were male and 199(48.7%) subjects were female,majority of the subjects 338(82.8%) were married,the educational status of the subjects were 113(27.6%) had primary education and 160(39.1%) subjects had secondary education, nearly 228(55.7%) subjects were unemployed and 119(29.1%) subjects were retired, 150(36.7%) subjects had income between Rs 5001-15000/month and 121(29.6%) subjects had income between Rs 15001-25000/-, nearly 98.5% subjects used to take their medicine regularly.

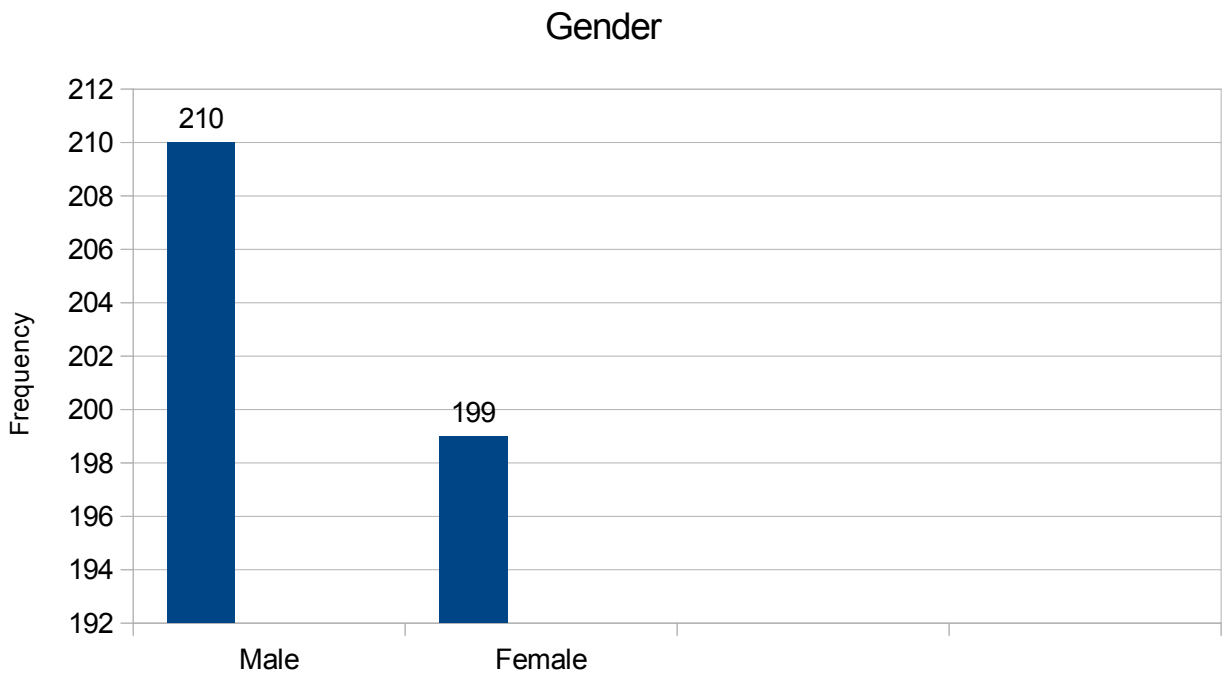

Figure 1: Bar diagram showing frequency distribution of subject based on gender

The data illustrated in Figure 1 shows that among 409 subjects,majority of the elderly210 were males and 199 were females

Section II: Level of compliance among Geriatric subjects: The data findings shows that 161 (39.4%) subjects forget to take medicine,65 (15.9%) subjects used to skip their medications in the ast 2 weeks, 59 (14.4%) subjects stopped their medications without the physician's consultation,112 (27.4%) subjects on travel or when not at home used to skip their medications,21(5.1%) subjects forgot to take medicine the previous day, more than half of the subjects i.e 237 (57.9%) believed that ealth welbieng depends on medications,however 55(13.4%) subjects reported that they stopped taking medications when their symptoms were undercontrol,whereas 88 (21.5%) mentioned hassled in sticking to the the treatment plan.

Section III: Factors influencing with drug compliance: The data findings enumerate, regarding the patient related factor influencing the drug compliance among the elderly subjects, majority of the subjects had knowledge of their disease and their management i.e 86.6% & 85.3%, however 313 (76.7%) subjects reported visual impairment and 145 (35.5%) subjects mentioned of hearing impairment. In relation with therapy realted factor influencing the drug compliance among the elderly subjects 119 (29.1%) subjects complained that they found their therapy complex, nearly 25.7% subjects mentioned difficulty in polypharmacy. With respect to sociocultural factor, 351 (85.8%) subjects reported that they are having family support .Regarding the economical factors 136 (33.3%) subjects are not able to afford the cost of the therapy, and 322 (78.8%) subjects reported they donot have insurance coverage . Disease related factors 27(6.6%) subjects find difficulty to follow the treatment due to the exacerbations of symptoms.The psychological factors affecting the drug compliance among elderly are 99(24.2%) subjects are feeling depressed of their condition, hospitalized factors causing stress were reported by 146 (35.7%) subjects, whereas 302(73.2%) subjects are not able to cope with illness.

Section IV: Association of Level of Complaince and Selected Variables

Table 1: Association between Level of Complaince and selected demographic variables N=4

Demographic Variables	High Adherance		Moderate Adherance		Low Adherance		χ^2	df	p value
	f	%	f	%	f	%			
Gender									
Male	28	43.1	155	52.5	27	55.1	2.225	2	0.329ns
Female	37	56.9	140	47.5	22	44.9			
Education									
Illiterate	1	1.5	1	0.3	3	6.1			
Primary	14	21.5	80	27.1	19	38.8			
Secondary	18	27.7	122	41.4	20	40.8			
Higher Secondary	9	13.8	17	5.8	2	4.1	31.37	12	0.002**
Diploma	10	15.4	36	12.2	1	2			
Graduate	10	15.4	33	11.2	3	6.1			
Post graduate	3	4.6	6	2	1	2			
Income per month (Rs)									
< 5000	12	18.5	71	24.1	22	44.9			
5001 to 15000	23	35.4	112	38	15	30.6			
15001 to 25000	26	4	87	19	8	3	15.95	8	0.043*
25001 to 50000	4	6.2	19	6.4	3	6.1			
> 50001	0	0	6	2	1	2			

* Significant (P<0.05), ns =No significant

The association computed using chi-square between the level of compliance and selected demographic variables is presented in table 3 and the data presented depicts that, there was significantly high association between education(0.002), income (0.043) and level of compliance (p<0.05), but there was no significant association between level of compliance and other demographic variable.

Discussion

In the present study, level of compliance to therapeutic regimen among geriatric age group on medication was assessed by using modified MMAS .Total level of compliance was categorized as high, moderate and low compliance.The result of the study showed that most of the subjects 295 (72.1%) have moderate compliance, 65(15.9%) subject exhibited high compliance and 49 (12%) identified with low compliance to therapeutic regimen.

In the light of literature it is found that few study were showing consistent finding with the present study findings. R.Shruthi,R.Joythi,H.P.Pundarikaksh, G .N. Nagesh and T.G Tushar conducted a descriptive study regarding medication compliance in geriatric patients with chronic illness at tertiary care hospitals (2016) among 251 geriatric patients at Kempegowda Institute of Medical Science Hospital and Research Centre, Bangalore . The study findings revealed that the average number of medications 2.96 +_ 1.42 per subject and most of the subject were receiving Fixed Drug Combination's (FDC's). The compliance level was assessed by way of interview using a 20 item structured pretest questionnaire as per modified MMAS (Morisky Medication Adherence Scale). The level of compliance was good in 45.4%, moderate in 35.45% and poor in 19.12% of study subject [6].

To summaries the discussion based on first objective is markedly clear that level of compliance of the participants were moderately to high.

There are seven set of factors such as patient related factors, therapy related factors, health care system related factor, sociocultural factor, economic factor, disease condition related factor and psychological factor. Among the seven factors therapy related factor is the highest factor influencing compliance (79.5%), followed by health care system related factors (75.4%), patient related

factors (72.5%), sociocultural factors (72.5%),disease condition related factors (71.8%),psychological factors (62.7%), and economical factors (49.3%). In the present study it is identified that economic factors play the pivotal role in hindering compliance with treatment. Hyekyung Jin, Yeomen Kim and Sandy Jeonghie the study findings revealed that the mean score of total FHL (Functional Health Literacy) test was 7.72+_3.51 (range 0-15). The percentage of total number of correct answers for the reading comprehension subtest and numeracy subtest medications. The study finding shows the factors affecting medication adherence included the patient degree of satisfaction with service sufficient explanation of medication counselling, educational level, health related problem and dosing frequency[8] . The supporting studies also mentions the impact of multifactorial influence in the adherance of medication in elderly.There is a significant association between the level of compliance and factors influencing compliance to therapeutic regimen. The study revealed that there is a high significant association between education(0.002), income (0.043) and level of compliance ($p<0.05$). In R.Shruthi,R.Joythi,H.P.Pundarikaksh, G .N. Nagesh and T.G Tushar study findings revealed that the level of compliance positively correlated with the educational status of the study subjects and their awareness about the diseases and prescribed medications. The overall level of compliance was higher in subjects living with spouse or families, subjects without any functional impairment, subjects who were regular for the follow-up visits and also in subjects who did not experience any adverse events [6] .

The supportive studies and the present study findings are similar.

Conclusion

Common trends in health care that affect medication in elderly are increased consumer awareness, fragmentation of care, polypharmacy and related problems, high cost of medicine & noncompliance.

Conflicts of Interest: Nil

Source of Funding: Self

Ethical Clearence: Research proposal was presented before the research committee of Amrita College of nursing and obtained approval. Later ethical clearance obtained from the ethical committee of AIMS, Kochi.

Reference

1. Prajapat R, Prajapat A. Health status of elderly women in Udaipur District : A rural urban comparison.
2. Statistics E. Central statistics office, Ministry of Statistics and Programme Implementation. Govt. of India, New Delhi (22nd Issue)(www. mospi. gov. in). 2015.
3. Almandil NB. Healthcare professionals' awareness and knowledge of adverse drug reactions and pharmacovigilance. Saudi medical journal. 2016 Dec;37(12):1359.
4. Evangelista LS, Dracup K. A closer look at compliance research in heart failure patients in the last decade. Progress in cardiovascular nursing. 2000 Jun;15(3):97-103
5. Shruthi R, Jyothi R, Pundarikaksha HP, Nagesh GN, Tushar TJ. A study of medication compliance in geriatric patients with chronic illnesses at a tertiary care hospital. Journal of clinical and diagnostic research: JCDR. 2016 Dec;10(12):FC40.
6. Teixeira JJ, Lefèvre F, Castro LL, Spínola AW. Drug compliance and the elderly: who is publishing, where, and when?. Cadernos de saude publica. 2000;16:139-44.
7. Jin H, Kim Y, Rhie SJ. Factors affecting medication adherence in elderly people. Patient preference and adherence. 2016;10:2117.
8. Johnson J, Vijayakumar K, Nujum ZT, Thankamoniamma PM. Compliance and its determinants to pharmacologic management of hypertension. Indian Journal of Community Health. 2019 Mar 31;31(1):63-72.