



Impact of Virtual Patient Education on Medication Adherence among Geriatric Patients

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ORIGINAL STUDY

Impact of Virtual Patient Education on Medication Adherence Among Geriatric Patients

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Abstract

Context: Virtual patient education for medication adherence can improve the health outcomes and reduce the hospital readmission.

Aim: The study aim was to assess the impact of virtual patient education on medication adherence.

Materials and methods: A longitudinal interventional study was conducted in tertiary care hospital over a period of 6 months to assess the medication adherence amongst elderly using the medication adherence rating scale questionnaire. The impact of pharmacist-assisted patient counseling on medication adherence was assessed by reassessing the medication adherence with medication adherence rating scale questionnaire after educational intervention performed at selected time-intervals. Data thus collected were statistically analyzed using descriptive analysis and presented in n (%) format.

Results: Total of 401 patients were enrolled in the study, of which, majority [220 (54.86%)] were adherent to their medications. Virtual patient counseling showed a positive impact in increasing medication adherence [113 (28.1%) vs 177 (46.4%)]. At the end of the 2nd follow up in the test group the good adherence had increased up to 18.23% while in the control group there was only 3.48% increase in good adherence.

Conclusions: This study reveals with the implementation of patient education and medication counseling, the patient's adherence to medication can be improved. Clinical pharmacists can play an important role in improving medication adherence especially in geriatric patients.

Keywords: Medication adherence, Geriatric, Chronic disease, Patient counselling

Key messages

Clinical pharmacists can play an important role in improving medication adherence especially in geriatric patients. This study reveals with the implementation of patient education and medication counseling patient's adherence to medication can be improved.

1. Introduction

Medication Adherence is considered to be a major concern. Adherence is defined as “the extent to which a person's behavior (in terms of taking medication, life style modification and diet) tally with health and medical advice [1]. Elderly patients consistently exposed to multiple drug therapy, which

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may often require drug therapy optimization during each hospital visit. However, such changes in drug regimen and resulting polypharmacy may end up in various drug related problems [2].

The World Health Organization (WHO) stated that “increasing the effectiveness of adherence interventions may have a far greater impact on health of the population than improvement in specific medical treatments.” It is the prime responsibility of a healthcare professional to help the patients to follow their treatment properly to obtain a better clinical outcome [3]. Healthcare providers can adopt various methods to improve medication adherence in elderly such as, patient counseling, simplifying drug regimen use of generic drugs, fixed-dose combination [4–6]. Patient counseling is critical to reinforce understanding and ensure sustained improvement. This support can be provided in many forms such as, including case management, social support, or telephone or in-person sessions. Supportive counseling helps patients to remain engaged in their health, provides a forum to address questions, and may build patients’ self-efficacy in their medication taking behaviours. Continued interaction with patients also may provide an opportunity to identify barriers to medication adherence as well as a chance to suggest potential strategies to overcome them. Developing this awareness are important for self-management, which ultimately will improve medication adherence [7,8].

Over the last decade, the use of virtual patient education emerged as a new method of training for educating the patients, which aims to increase an elderly patient's independence and quality of life, and produce cost savings for the authorities. Virtual patient education helps to build a trustful relationship between the patient and the pharmacist. Thus, virtual patient education for medication adherence in elderly can improve health outcomes and reduce hospital readmission [7,8].

1.1. Aim

- To assess the rate of medication adherence amongst geriatrics patients.
- To assess the impact of virtual pharmacist counseling on medication adherence in geriatrics.

2. Materials and methods

A longitudinal interventional study was conducted in a tertiary care teaching hospital over a period of six months. All geriatric patients admitted to the hospital, with at least one chronic disease were included in the study.

All the required information were collated from the patient's case notes, treatment chart, laboratory reports, and patient and patient care-taker interviews.

2.1. Subjects and methods

Ethics approval

The study was approved by the Institutional Ethical Committee (IEC).

2.2. Study plan

Geriatric patients who met inclusion criteria and who were willing to voluntarily were included in the study. They were assessed for medication adherence using MARS questionnaire. Fig. 1 depicts flowchart of study procedure for virtual patient counseling.

3. Results

3.1. Demographic characteristics of the study population

A total of 401 eligible patients included in the study were interviewed with MARS questionnaire. Male predominance [234 (58.36%)] was observed among study population. Majority [233 (58.10%)] of patients belonged to age group of 60–70 years. Table 1 presents demographic characteristics of the study population.

3.2. Assessment of medication adherence among the study population

According to the study methodology, medication adherence was assessed using Medication Adherence Rating Scale (MARS). The details of patients’ responses to MARS questionnaire are summarized in Table 2. Study population was classified based on good adherence and bad adherence. Out of 401 study subjects interviewed, little above half of the study population 220 (54.86%) were adherent to their prescribed medications. Whereas 181 (45.13%) were non-adherent to their medications.

3.3. Impact of virtual patient counselling on medication adherence

The impact of patient counseling on medication adherence level on study subjects were compared between baseline, follow up 1 and follow up 2 amongst test and control groups. At the baseline interview (401 subjects), in the test group, the good adherence was observed in 113 (28.17%) patients

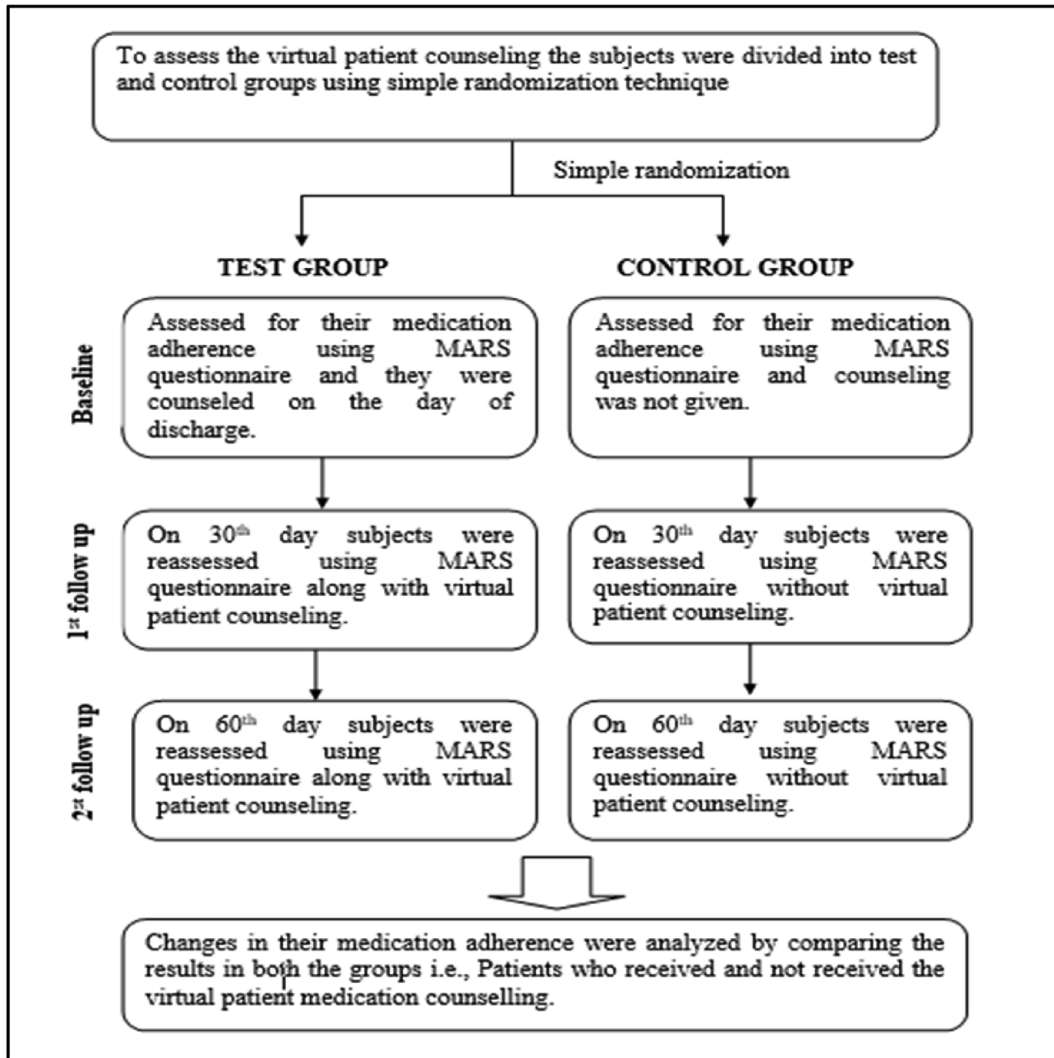


Fig. 1. Flowchart representation of study procedure for virtual patient counseling.

while bad adherence was observed in 87 (21.69%) patients. Whereas in the control group, the good adherence and bad adherence was observed in 107 (26.68%) and 94 (23.41%) patients respectively.

During the 1st follow up (381 patients since 9 patients didn't receive call and 11 patients died), in test group, good adherence and bad adherence accounted for 150 (39.3%) and 39 (10.2%) patients

respectively while in the control group good adherence and bad adherence was observed in 106 (27.8%) and 86 (22.57%) patients respectively. Similarly, during the 2nd follow up, in test group, good adherence and bad adherence was accounted for 177 (46.4%) and 12 (3.14%) patients whereas in the control group the good adherence and bad adherence was observed in 114 (2.9%) and 78 (20.4%) patients respectively.

At the end of the 2nd follow up, in the test group, the good adherence increased up to 18.23% and the bad adherence was decreased to 18.55%. But in case of control group there was only 3.48% increase in good adherence and 3.01% decrease in bad adherence. Table 3 presents comparison of medication adherence between test and control groups and Fig. 2 depicts comparison of medication adherence between test and control groups.

Table 1. Demographic characteristics of the study population.

Characteristics		Number of Patients (%) (n = 401)
Age	60–70	233 (58.10)
	71–80	131 (32.66)
	81–90	35 (8.72)
	91–100	2 (0.49)
Gender	Male	234 (58.36)
	Female	167 (41.64)

Table 2. Patients' responses to MARS questionnaire.

Sl. No.	Questions	Number (%) (n = 401)	
		Yes	No
1	Do you ever forget to take your medication?	207 (51.62)	194 (48.37)
2	Are you careless at times about taking your medication?	213 (53.11)	188 (46.88)
3	When you feel better, do you sometimes stop taking your medication?	184 (45.88)	217 (54.11)
4	Sometimes if you feel worse when you take the medication, do you stop taking it?	185 (46.13)	216 (53.86)
5	I take my medication only when I am sick.	221 (55.11)	180 (44.88)
6	It is unnatural for my mind and body to be controlled by medication.	129 (32.16)	272 (67.83)
7	My thoughts are clearer on medication.	270 (67.33)	131 (32.66)
8	By staying on medication, I can prevent getting sick.	292 (72.81)	109 (27.18)
9	I feel weird, like a 'zombie' on medication.	30 (7.48)	371 (92.51)
10	Medication makes me feel tired and sluggish.	156 (38.90)	245 (61.09)

Table 3. Comparison of medication adherence between test and control groups.

		Test			Control		
		Male	Female	Total	Male	Female	Total
Baseline n = 401 (%)	Good adherence	64 (15.96)	49 (12.21)	113 (28.17)	63 (15.71)	44 (10.9)	107 (26.68)
	Bad adherence	48 (9.72)	39 (9.72)	87 (21.69)	59 (14.71)	35 (8.72)	94 (23.41)
1st follow up n = 381 (%)	Good adherence	85 (22.3)	65 (17.06)	150 (39.3)	63 (16.5)	43 (11.2)	106 (27.8)
	Bad adherence	22 (5.7)	17 (4.46)	39 (10.2)	52 (13.6)	34 (8.92)	86 (22.57)
2nd follow up n = 381 (%)	Good adherence	98 (25.7)	79 (20.73)	177 (46.4)	66 (17.32)	48 (12.59)	114 (29.9)
	Bad adherence	9 (2.36)	3 (0.78)	12 (3.14)	49 (12.8)	29 (7.61)	78 (20.4)

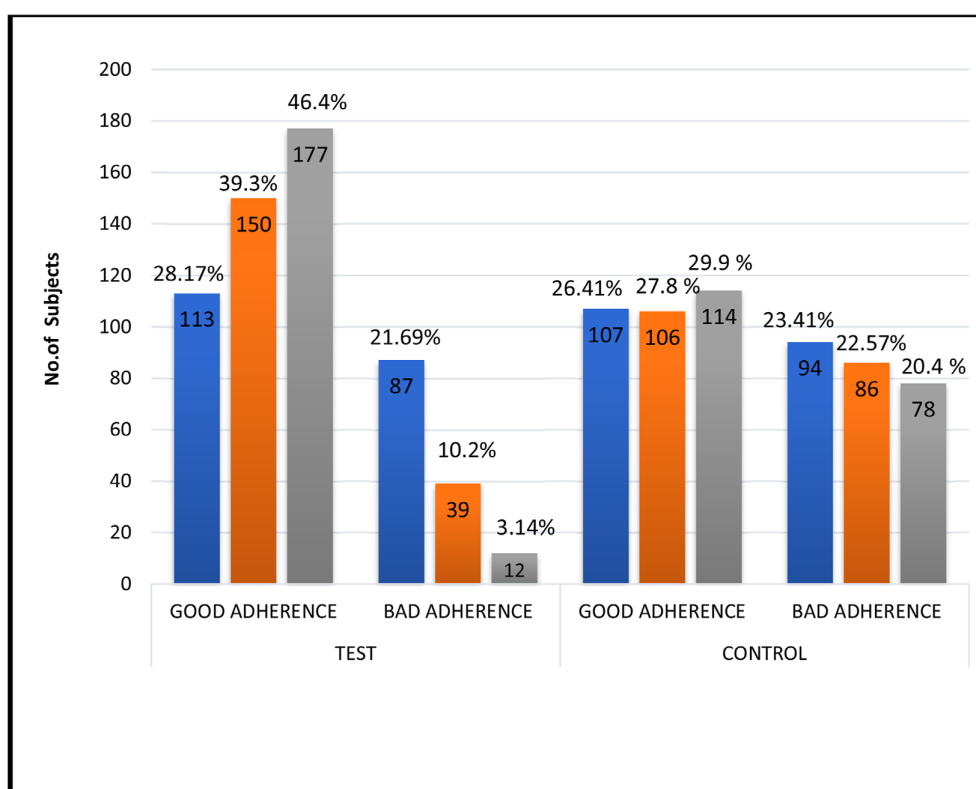


Fig. 2. Comparison of medication adherence between test and control groups.

4. Discussion

Clinical Pharmacist undertake a major responsibility to, identify, resolve and prevent drug related problems, thereby ensuring a better therapeutic outcome [9]. One of the reports by WHO's World Medicine situation stated that in developing countries like India dispensing time is around 60 s, in which one third of the patients will leave the pharmacy without understanding their prescription. Whereas a study conducted by Welson et al. demonstrated that in developing countries like USA nearly one third of the patients do not talk to the doctor regarding their medication [10,11]. Here comes into picture the various interventional methods to improve the medication adherence, Patient education is one among those. Patient education is economically feasible measure to promote adherence [12]. The present study attempts to rule out the impact of virtual patient counselling in promoting medication adherence. Initial phase of study reveals 21.69% of the study population to be less adherent to the medication. Towards the end subject who received virtual patient counselling have shown improvement in adherence and decline in bad adherence. A similar study conducted by Leguelinel-Blache et al. reported that patient showed improvement in adherence level after providing the discharge counselling [13]. Similarly a study conducted by Choi S Y et al. noted that patient counselling will increase knowledge and skill for taking medication correctly [14]. This study findings suggests that patient counselling should be adopted as a holistic approach to ensure medication adherence among geriatric patients after hospital discharge.

4.1. Limitations

The sample size was less due to shorter duration (six months) of the study and lack of time to develop rapport with the patients and analyzed data should be considered cautiously as self-reported behavior can be misleading and also there were few patients' dropouts during follow-ups.

5. Conclusion

Clinical pharmacists can play an important role in improving medication adherence especially in geriatric patients. This study reveals with the implementation of patient education and medication counseling patient's adherence to medication can be improved. Therefore, it is recommended that medication counselling should be carried out especially in elderly population irrespective of their rate

of adherence, with which, only then it is possible to prevent adherent patients from falling into non-adherence and may improve overall therapeutic outcomes.

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Conflict of interest

The author(s) declare(s) that they have no conflicts of interest to disclose.

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