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Research Article

Interventional Study on Adherence to Pharmacotherapy and Drug Pattern in Elderly Patients at Civil Hospital of Badin, Pakistan

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Abstract

Background: To assess the contributing factors to adherence of pharmacotherapy and perception of elderly patients.

Methods: This prospective cross-sectional study was conducted in the outpatient clinic of Civil Hospital Badin, Pakistan from January to June 2019. A total of 300 samples were selected to analyze the results. A self-designed proforma (prescribing indicator form) was used for collecting data including patient demographics, diagnosis, and the current medications prescribed for each patient.

Results: Of the 300 selected participants, 221(73.7%) were male, while 79 (26.3%) were female. Majority of the subjects in the age group of 60–69 (52%) and 70–79 years (27%) followed by those aged >79 (21%). Antibiotics were prescribed to 17.2% and vitamins to 14.7%. Patients' responses related to nonadherence factor were 92.7% for the cost, 32.7% for the long treatment duration, and 24% for the lack of knowledge. Out of the total patients, 28% were forgetful, 26.7% complained about complex therapy, 26.3% blamed financial problems, 19.7% patients had side effects, and 14.3% were negligent in taking the medication.

Conclusion: Patient conformity can be enhanced by dropping polypharmacy and simplifying complex management, use of extended formulations, rate of medications, and by creating awareness among elderly patients.

Keywords: elderly, polypharmacy, pharmacotherapy, adherence

1. Introduction

In geriatric patients, irrational prescription of medicines has been found to be the most frequent reason of morbidity and mortality. Irrational medication is defined as: "A medicine in which the risk of an undesirable event is more, its clinical benefit, mainly when there is a safer or more useful alternate treatment for the same situation

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is available." Previous studies have shown the incidence of adverse reactions of drug are due to irrational prescription of medications [1, 2]. It is pertinent to recognize the irrational medications use in this group of population to curtail pharmacotherapy-related problems [3]. It is an important prompt factor for the conception of criteria for the harmless medicines usage in the elderly people, specifically, the beers criteria, released in 1997 and updated in 2012 and 2015 [4]. The beers criteria in geriatric, usually known as the beers list, sets out the parameters for healthcare providers to assist in the safe prescription of medicines for older adults. It emphasizes on medication prescribing which is redundant [5]. It was observed that 10–31% of geriatrics admissions in hospital emergency department were related to greater use of unnecessary medications [5, 6]. Medications adherence generally refers to whether a patient is taking their medications as prescribed, as well as whether they continue to obtain the prescribed medicine [7]. Adherence can be defined as: "The extent to which an individual behavior corresponds with agreed recommendations from a health care provider" [8]. It is also considered that whether patients take medications according to prescribed instructions and recommendations [9, 10]. Various factors such as patients' age and gender, socioeconomic status, severity of illness, difficulty in prescribing medication, public approval, poor patient-related relationships, high cost, poor memory, and presence of emotional problem have been shown to influence the adherence in various populations [2]. There are five adherence-related dimensions that are considered most important in healthcare system. Societal, healthcare system-related, circumstance-related, physiotherapy-related, and patients-related. Nonadherence is a complicated problem that not only affects patients but also healthcare providers. Medication nonadherence occurs when patient fails to take medicines according to the prescribed instructions [11].

2. Materials and Methods

A prospective cross-sectional study was conducted in the outpatient clinic of Civil Hospital Badin, Pakistan from January to June 2019. A total of 300 samples were selected to analyze the results. A self-designed proforma (prescribing indicator form) was used for collecting data which including patient demographics, diagnosis, and current medications prescribed for each patient. Both male and female elderly patients who were taking two or more medications for any medical illness were included. Patients receiving care at home were excluded. Patients' demographic information, previous treatment history, and existing medications were distinguished in a self-predesigned proforma. Patients' relevant information were obtained from hospital records and through direct interviews

with patients. The patients' demographic information, diagnosis, previous medical and current diagnosis with prescribed medication was arranged in patient proforma. At the end of the research, results were analyzed using the MS Excel and descriptive statistics.

3. Results

Out of the 300 selected participants, 221 (73.7%) were male while 79 (26.3%) were female. Majority of the subjects were in the age group of 60–69 (52%) and 70–79 years (27%), followed by those aged >79 (21%), as shown in Table 1.

TABLE 1: Demographic details of the patients (age distribution).

Age distribution of patients		Frequency (n)	Percentage (%)
Valid (yr)	60–69	156	52%
	70–79	81	27%
	>79	63	21%
	Total	300	100%

Moreover, majority of patients were diagnosed with arthritis and diabetics (36%) and heart problems, as shown in Table 2.

TABLE 2: Comorbidities among patients.

Comorbidities	Frequency (n)	Percentage (%)
Arthritis and diabetes	108	36.0%
Heart problems and hypertension	41	13.7%
Respiratory diseases and diabetes	54	18.0%
Gastro-intestinal Problem	34	11.3%
Psychological and hypertension	25	8.3%
Eye diseases	15	5.0%
Skin infections	11	3.7%
Seasonal allergy	9	3.0%
Cholecystitis	3	1.0%
Total	300	100.0

Further, majority of the patients were prescribed multiple-drug therapy. Most prescriptions had either seven (27.7%) or six (21%) drugs prescribed in them (Table 3).

Results showed that antibiotics were prescribed to 17.2% patients, followed by vitamins and nutritional supplement to 14.7%, as shown in Table 4.

Patient's response related to nonadherence factor were 92.7% for cost, 32.7% for long duration of treatment period, and 24% for lack of knowledge about the disease (Table 5).

TABLE 3: Drugs prescribed per prescription.

Number of drugs		Frequency (n)	Percentage (%)	P-value
Valid	2 drugs	7	2.3	
	3drug	17	5.7	
	4drugs	52	17.3	
	5 drugs	41	13.7	0.005
	6 drugs	63	21.0	
	7 drugs	83	27.7	
	>7 drugs	37	12.33	
	Total	300	100.0	

TABLE 4: Drug utilization pattern.

Prescribed drugs in prescription	No. of drugs (n)	Percentage (%)
Antibiotics	295	17.2%
Vitamins and nutritional supplements	255	14.7%
Antiprotozoal	134	7.7%
Antacid	182	10.5%
Laxatives	112	6.4%
Diuretics	101	5.8%
Analgesics	121	7%
Anti-hypertensive	163	9.4%
Cholagogues	59	3.4%
Antidiabetics	158	9.1%
Others	150	8.7%
Total	1733	100%

TABLE 5: Factors of nonadherence.

Factors	No. of patient (300)	Percentage (%)	P-value
Social and economic			
Cost of medication too expensive	278	92.7%	0.23
Illiterate	105	35%	
Therapy-related			
Complexity of medication regimen	121	40.3%	
Long duration of treatment period	98	32.7%	0.0034
No. of medications/too many medications	101	33.7%	
Patient-related			
Lack of knowledge about the disease	72	24%	
Failure to remember to take all the pills	69	23%	0.0013
When felt worse/bad	41	13.7%	
Decision to omit	48	16%	

Patients related to BMQ (access screen) response showed that 66% of the patients had difficulty in obtaining medications on time but after interventions it was 59.4%.

TABLE 6: Frequency of patient's responses to BMQ (access screen).

BMQ (access screen)	No. of patients pre-interventions (300)	No. of patients post-interventions (244)
Reported difficulties in reading what was written on the packet	153 (51%)*	150 (61.5%)*
Reported difficulty in obtaining the medications on time	198 (66%)**	145 (59.4%)**
Reported difficulties in taking various medicine at the same time	166 (55.3%)*	146 (59.8%)**

*P =< 0.005, **P =< 0.001.

4. Discussion

Medication nonadherence is a complex problem, and a major public health issue. Adherence to pharmacotherapy is a primary determinant of successful therapy and considers a multi-factorial response. Clinical practitioners apply principles and adherences methods in daily practice in a similar manner for the effectual supervision of healthcare system shown in the study [9, 10]. Majority of elderly patients in this study was male (73.7%). Gender distribution of elderly patients has been addressed in various previous studies that have reported findings similar to ours. Although adherence to treatment involves multiple factors, age can be considered as one of the leading cause for forgetfulness and polypharmacy in relation to the comorbidities. Majority of our patients were in the age group of 60–69 (52%) and 70–79 years (27%), followed by those aged >79 years (21%), similar to the study of Fernandez *et al.* [28]. The noncompliance and nonadherence are influenced by the increasing age of the patients. The standard for adherence evaluation is more competent use of restricted resources for maximization of healthcare benefit at lower cost. The results of the current study showed that the majority of the patients were on multiple-drug therapy which indicates polypharmacy since 27.7% of them were prescribed six or more medicines and 21% were given more than five. Clearly, polypharmacy is the major factor contributing to the noncompliance as reported by Payne and Esmonde-White [29]. According to Schuz *et al.*, nonadherence as difficulty in reading, in remembering time and comorbidities with multiple disease requires multiple drugs [12]. Clearly, studies on elderly people have shown that there is a need to address adherence-related problems among elderly patients [12–14]. Kharicha *et al.* showed that elderly people generally resist to taking medications [15–17]. Different studies support age factor as the chief reason for nonadherence [18]. The cost of the medication cannot be ignored in assessing the compliance since our study showed that it was a significant cause for the noncompliance (92.7%; p = 0.23). Therapy-related reasons were also part of our assessment since complex regimen was found among 40.3% (p = 0.0034) as

studied by many researchers and in line with the findings of Navaratnam *et al.* [26]. Moreover, our study showed patients-related factors among 24%, which is similar to the findings of Nikolaus *et al.* [19]. Polytherapy involves a multiple-drug treatment, which is quite difficult to follow. For elderly patients, the polypharmacy plays a major role as a contributing factor to nonadherence, as the results of the current study showed that 59% of the patients failed to take medication on time, which is also supported by some previous studies [20–23]. The interventions were performed to assess the response; post-intervention results showed significant changes in the reading of details about medications which was altered from 51% of the patients to 61.5% ($p =< 0.005$). Similarly, previous interventional studies have also shown a positive response [24–26]. Various comorbidities have an express association with obedience of medication in elderly patients as patients with numerous diseases obviously require a higher complex dosing regimen, polypharmacy, and amplified medication costs [27–29].

5. Conclusion

The study of elderly patient for nonadherence and utilization of medicine therapies showed an association with the intensity of compliance. The patients who show regularity in follow-up sessions and attend interventional guideline generally showed better medication compliance. Standard follow-up and patient education is recommended for generating appropriate knowledge about their treatments.

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Ethical Considerations

The study was approved by the advance studies and research board, University of Sindh Jamshoro, Pakistan. All patients filled a consent form after receiving all information by the patients and their HCPs.

Competing Interests

The authors have no conflicts of interest to declare for this study.

Availability of Data and Material

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