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ORIGINAL RESEARCH

# Factors influencing Noncompliance to Treatment among Elderly in the Urban Field Practice Area of RajaRajeswari Medical College and Hospital, Bengaluru, Karnataka

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## ABSTRACT

Noncompliance to medication is a leading issue and a huge burden in our current health care system. Poor adherence has shown to decrease the effects of prescribed medications or other treatments and increase the likelihood of poor outcomes. A community-based cross-sectional study was conducted in the urban field practice area of RajaRajeswari Medical College and Hospital, Bengaluru, Karnataka, India, among all the elderly aged ≥60 years, using a semistructured and pretested questionnaire. The study included 153 elderly participants, among whom 89 were males and 64 were females. Out of the 153 participants, 125 (81.69%) had some or the other illness. Out of the 125 who were ill, only 78 (62.4%) were taking treatment regularly. The remaining 47 (37.6%) were noncompliant to treatment. The main factors for noncompliance were forgetfulness 16 (34%) and symptomatic improvement 10 (21.3%).


**Keywords:** Bengaluru, Elderly, Noncompliance to treatment, Urban.

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## INTRODUCTION

Noncompliance to medication is a leading issue and a huge burden in our current health care system. Medication compliance has been defined by the International Society for Pharmacoeconomics and Outcomes Research as the "extent to which a patient acts in accordance with the prescribed interval and dose of a dosing regimen". In a limited-resource country like India, the preponderance of economic instability, low literacy level, and restricted access to health care facilities might have led to the increased incidence of medication nonadherence.[1] Nonadherence may be in the form of not fulfilling prescriptions, omission of doses, incorrect medication, incorrect dosages or schedules, and premature discontinuation of drugs. Poor adherence has shown to decrease the effects of prescribed medications or other treatments and increase the likelihood of poor outcomes.

There are two types of nonadherence:

1. Unintentional nonadherence: Results from practical barriers of adherence, such as:
   - Misunderstanding the prescribing instructions
   - Language barriers
   - Forgetfulness
2. Intentional nonadherence: Results from patient's decision not to take the medication as prescribed, i.e., to take less or none or to take it differently than prescribed, such as:
   - Patients may doubt the necessity of taking a daily medication.
   - They may have concerns about potential adverse effects.[2]

The elderly are of particular concern in this regard because of their use of multiple drugs, which has been associated with noncompliance, and because of their greater vulnerability to the sequelae of undertreatment or overtreatment.[3]

## NEED FOR THE STUDY

There are only few studies on the factors influencing noncompliance to treatment among the elderly, both in India and Karnataka. Hence, the present study was conducted in Channasandra colony, i.e., the urban field practice area of RajaRajeswari Medical College and Hospital (RRMCH), Bengaluru, Karnataka.

## OBJECTIVES

- To describe the socio demographic profile of the elderly in the urban field practice area of RRMCH.
- To assess the compliance to treatment among the elderly in the urban field practice area of RRMCH.
- To identify the reasons influencing noncompliance to treatment among the elderly in the urban field practice area of RRMCH.

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## MATERIALS AND METHODS

### Study Setting

The study was conducted in the Channasandra colony, i.e., the urban field practice area of RRMCH, Bengaluru, Karnataka.

### Study Design

Community-based cross-sectional study.

### Study Period

2 months (July 2015–August 2015)

### Study Tool

Semistructured, pretested questionnaire to interview the elderly.

### Source of Data

Elderly people ≥60 years of age, who are permanent residents of Channasandra colony, i.e., the urban field practice area of RRMCH, Bengaluru, India.

### Inclusion Criteria

All elders ≥60 years of age, who are willing to participate in the study.

### Exclusion Criteria

- Elderly who are seriously ill.
- Elderly who have difficulty in speech and hearing (difficulty in comprehension)

## METHODOLOGY

House-to-house survey was conducted in the Channasandra colony, i.e., the urban field practice area of RRMCH, Bengaluru, India, to cover all the elderly aged ≥60 years after obtaining informed consent from the study subjects. Institutional Ethical Committee approval was obtained prior to initiation of the study. The information was collected using semistructured pretested questionnaires by interviewing method. The questionnaire included questions on the sociodemographic profile of the elderly, questions to assess the compliance to treatment among the elderly, and questions to identify the factors influencing compliance to treatment among the elderly.

## RESULTS

Out of the 168 elderly in the field practice area of RRMCH, 153 elderly participants were interviewed and the remaining 15 were not available at the time of survey, even after visiting three times.

The study included 153 elderly participants, among which 89 were males and 64 were females.

The sociodemographic characteristics of the study were collected and compiled in Table 1.

Table 1 shows that a majority (91, 59.4%) of the participants were in the age group of 60 to 70 years, while only 20 (13.1%) of the participants were in the age group of above 80 years. Males were in higher proportion 89 (58.2%) in the study. About 90 (58.8%) of the participants were illiterate. A majority of the study population (111, 72.5%) were not working. A total of 100 (65.4%) of the study participants belonged to the lower socioeconomic status (classes 4 and 5) and 39 (25.5%) belonged to class 3. Most of the study participants (130, 85%) were Hindus.

Out of the 153 participants, 125 (81.69%) had some or the other illness. Out of the 125 who were ill, only 78 (62.4%) were taking treatment regularly. The remaining 47 (37.6%) were noncompliant to treatment. Chi-square test was used as test of significance to test the associations. It was observed that the association was significantly more as age increases, among married, literate, those who were working, those who belonged to lower socioeconomic groups, and those who were living with caregivers.

**Table 1:** Sociodemographic profile of study participants

| | *Frequency* | | |
|---|---|---|---|
| | *Male (n = 89)* | *Female (n = 64)* | *TOTAL (n = 153)* |
| *Age group* | | | |
| 60–70 | 54 (59.3) | 37 (40.7) | 91 (59.4) |
| 71–80 | 24 (57.1) | 18 (42.9) | 42 (27.5) |
| Above 80 | 11 (55) | 9 (45) | 20 (13.1) |
| *Sex* | 89 (58.2) | 64 (41.8) | 153 (100) |
| *Religion* | | | |
| Hindu | 76 (58.5) | 54 (41.5) | 130 (85) |
| Muslim | 8 (61.5) | 5 (38.5) | 13 (8.5) |
| Christian | 6 (60) | 4 (40) | 10 (6.5) |
| *Marital status* | | | |
| Married | 66 (61.7) | 41 (38.3) | 107 (69.9) |
| Widowed | 19 (48.7) | 20 (51.3) | 39 (25.5) |
| Separated/Divorced | 4 (57.1) | 3 (42.9) | 7 (4.6) |
| *Education* | | | |
| Literate | 48 (76.2) | 15 (23.8) | 63 (41.2) |
| Illiterate | 41 (45.5) | 49 (54.5) | 90 (58.8) |
| *Occupation* | | | |
| Working | 28 (66.6) | 14 (33.4) | 42 (27.5) |
| Not working | 61 (55) | 50 (45) | 111 (72.5) |
| *Socioeconomic status* | | | |
| Class 1 | 3 (75) | 1 (25) | 4 (2.6) |
| Class 2 | 7 (70) | 3 (30) | 10 (6.5) |
| Class 3 | 24 (61.5) | 15 (38.5) | 39 (25.5) |
| Class 4 | 47 (54.7) | 39 (45.3) | 86 (56.2) |
| Class 5 | 8 (57.1) | 6 (42.9) | 14 (9.2) |

*Figures in parenthesis indicate percentages

**Table 2:** Distribution of study participants based on compliance to treatment

| | *Frequency* | | | *$\chi^2$ – Test of significance* | | |
|---|---|---|---|---|---|---|
| | *Yes (n = 78)* | *No (n = 47)* | *Total (n = 125)* | *$\chi^2$* | *DF* | *p-value* |
| *Age group* | | | | | | |
| 60–70 | 40 (54.1) | 34 (45.9) | 74 (59.2) | | | |
| 71–80 | 24 (70.6) | 10 (29.4) | 34 (27.2) | 5.48 | 1 | p<0.05 |
| Above 80 | 14 (82.4) | 3 (17.6) | 17 (13.6) | | | |
| *Sex* | | | | | | |
| Male | 46 (63) | 27 (37) | 73 (58.4) | 0.028 | 1 | p>0.05 |
| Female | 32 (61.5) | 20 (38.5) | 52 (41.6) | | | |
| *Religion* | | | | | | |
| Hindu | 68 (64.2) | 38 (35.8) | 106 (84.8) | | | |
| Muslim | 5 (45.5) | 6 (54.5) | 11 (8.8) | 0.911 | 1 | p>0.05 |
| Christian | 5 (62.5) | 3 (37.5) | 8 (6.4) | | | |
| *Marital status* | | | | | | |
| Married | 60 (69) | 27 (31) | 87 (69.6) | | | |
| Widowed | 15 (46.9) | 17 (53.1) | 32 (25.6) | 5.25 | 1 | p<0.05 |
| Separated/divorced | 3 (50) | 3 (50) | 6 (4.8) | | | |
| *Education* | | | | | | |
| Literate | 40 (78.4) | 11 (21.6) | 51 (40.8) | 9.43 | 1 | p<0.01 |
| Illiterate | 38 (51.4) | 36 (48.6) | 74 (59.2) | | | |
| *Occupation* | | | | | | |
| Working | 28 (82.4) | 6 (17.6) | 34 (27.2) | 7.92 | 1 | p<0.01 |
| Not working | 50 (54.9) | 41 (45.1) | 91 (72.8) | | | |
| *Socioeconomic status* | | | | | | |
| Class 1 | 1 (25) | 3 (75) | 4 (3.2) | | | |
| Class 2 | 4 (50) | 4 (50) | 8 (6.4) | | | |
| Class 3 | 17 (53.1) | 15 (46.9) | 32 (25.6) | 4.44 | 1 | p<0.05 |
| Class 4 | 50 (71.4) | 20 (28.6) | 70 (56) | | | |
| Class 5 | 6 (54.5) | 5 (45.5) | 11 (8.8) | | | |
| *Living with caregiver* | | | | | | |
| Yes | 61 (67.8) | 29 (32.2) | 90 (72) | 3.96 | 1 | p<0.05 |
| No | 17 (48.6) | 18 (51.4) | 35 (28) | | | |

*Figures in parenthesis indicates percentages

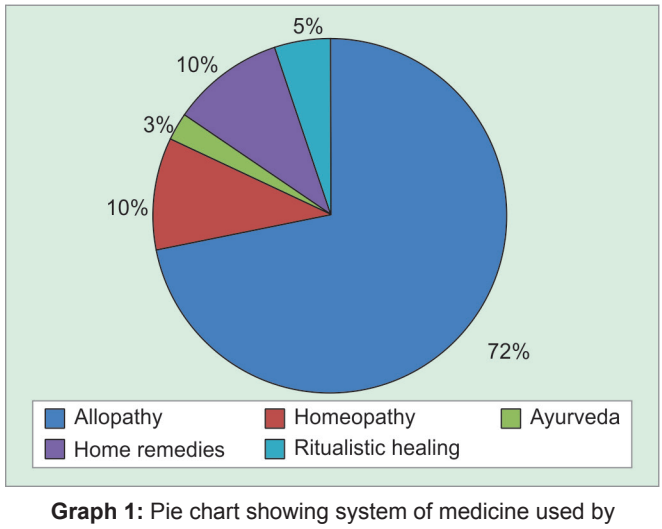
**Table 3:** Factors influencing noncompliance to treatment

| | *Frequency* | *Percent* |
|---|---|---|
| Symptomatic improvement | 10 | 21.3 |
| Forgetfulness | 16 | 34 |
| Lack of family support | 6 | 12.8 |
| Inaccessibility to medication | 8 | 17 |
| Fear of side effects | 6 | 12.8 |
| Financial issues | 7 | 14.9 |
| Treatment considered unnecessary | 7 | 14.9 |

The factors influencing noncompliance to treatment have been described in Table 3.

Among the participants who were noncompliant to treatment, i.e., 47 (37.6%), the main factors for noncompliance were forgetfulness in 16 (34%) and symptomatic improvement in 10 (21.3%). A total of 8 (17%) reported noncompliance due to inaccessibility to medicines and 7 (14.9%) considered treatment unnecessary and also faced financial issues.

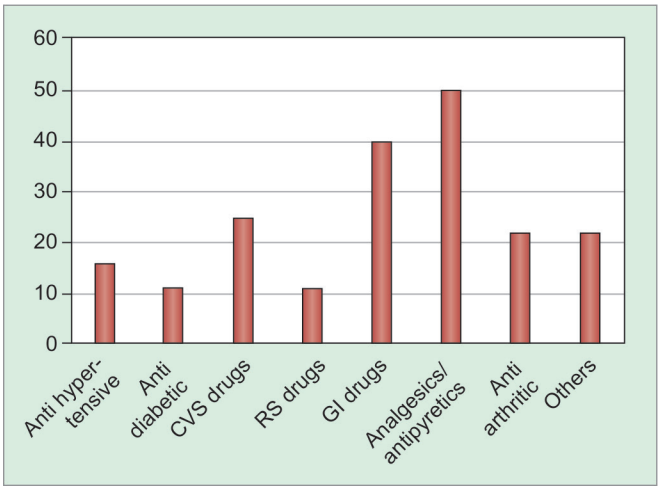
The system of medicine followed by the study participants has been illustrated in Graph 1.




**Graph 1:** Pie chart showing system of medicine used by participants

Out of 153 participants, the majority (72%) of them followed allopathy for treatment, followed by homeopathy and home remedies (10%).

Type of medication taken by the study participants has been illustrated in Graph 2.




**Graph 2:** Bar diagram showing type of allopathic medication followed by study subjects

Out of 72% people, who follow allopathy, 55.5% were taking analgesics/antipyretics and 44.4% were taking gastrointestinal drugs, while 27.7% were taking cardiovascular drugs.

## DISCUSSION

In the present study, the overall compliance to medication was found to be 62.4%, which is comparable to the study conducted by Raghuram Venugopal et al,[4] where 60.4% was the overall compliance rate.

In our study, 58.8% of the study participants were found to be illiterate, which is slightly higher than the study conducted by Shalini et al.[5] It was observed in this study that illiteracy was higher among females (54.5%) than males (45.5%). In the present study, (82.4%) of the elderly people aged 80 years and above were compliant to treatment followed by 70.6% in the age group of 71 to 80 years. These findings are comparable to a study done by Agarwal Nipun et al,[6] wherein increased age also caused a large increase in the percentage of elderly being compliant to treatment. About 65.4% of the study participants belonged to the lower socioeconomic status (classes 4 and 5), which is similar to the findings of the study conducted by Shalini et al,[5] where 64.41% belonged to classes 4 and 5 socioeconomic status.

About 72% of the study participants followed allopathic treatment, which is the same as what was observed in the study conducted by Agarwal Nipun et al.[6] The elderly who were literate were found to be compliant to treatment; similar findings were seen in the above-mentioned study.[7-9]

In the present study, among the factors influencing noncompliance to treatment, 34% reported forgetfulness in our study, which was lesser than what was observed (46.75%) by Ravi Kumar Medi et al.[1] About 21.3% reported noncompliance due to symptomatic improvement, which is slightly more than what was observed (18.8%) by Raghuram Venugopal et al[5] in their study. About 12.8% of the participants reported lack of family support, which is similar to the findings in a study conducted by Hinchageri et al.[2]

## CONCLUSION

The overall noncompliance rate was 37.6%, and the reasons for noncompliance were forgetfulness, symptomatic improvement, inaccessibility to medication, financial issues, treatment considered unnecessary, fear of side effects, and lack of family support. To overcome this, medication reminder applications to mobile phone users can be employed. We must educate them regarding regular use of medication and try to motivate family members to give medication regularly.

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