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Research Article

**NON COMPLIANCE AND PATIENT PERCEIVED
PROBLEMS IN CARDIOVASCULAR DISEASE PATIENTS:
A PROSPECTIVE STUDY****Nikhil Peter^{1*}, Reethu Kochery¹, Tarun Raj¹, S.Parimalakrishnan¹,
S.Selvamuthukumar²**¹Department of Pharmacy Practice, Annamalai University, Chidambaram, Tamilnadu, India.²Department of Medicine, Raja Muthiah Medical College. Chidambaram, Tamil Nadu.**Abstract:**

Introduction: Noncompliance is one of the major problems in medical treatment; there is plenty of reason resulting noncompliance, which includes patient attitude, cost, and forgetfulness, discontinuation of medications, unsatisfied with health care professionals, age, gender and lack of knowledge.

Objective: Our objectives of the study was to investigate the factors affecting noncompliance and patient perceived problems mainly from the view point of cardiovascular disease, diagnosed in RMMCH Annamalai Nagar Chidambaram.

Method : The study was conducted over the period of November 2015 to January 2016; questionnaires were developed for retrieving data from the patients.

Results: A total of 40 patients were interviewed, it was turned out that almost all medically treated cardiovascular patients are compliance [31.5%] and [68.5%] are non compliance to the treatment. Forgetfulness and lack of knowledge seems to be the main factor s resulting non compliance. Over half of the patients were feeling difficult to adapt the life style and dietary changes. One by third the patients are not affordable with cost of the medication and most of them were unaware about side effect [95%], patients showing a careless attitude toward their medication intake. Patient belief about their reason of condition include fate [32.5%], age [15%], alcoholic/smoking [12.5%], discontinuation of treatment [27.5%], genetic factor [5%].

Conclusion: The risk of non compliance is usual in medical treatment. Understanding the phenomenon and patient education is essential for achieving better outcome.

Key words: Compliance, Non compliance, Medication adherence, Patient perceived problem.

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INTRODUCTION:

Noncompliance is one of the major problems in medical treatment; there is plenty of reason resulting noncompliance, which includes patient attitude, cost, and forgetfulness, discontinuation of medications, unsatisfied with health care professionals, age, gender and lack of knowledge etc. Several theoretical models have been used to explain non-compliance, but with quite poor success [1]. This may be partly related to the fact that the theories have been applied to all non-compliant patients, regardless of whether their non-compliance is intentional or non-intentional[2]. A patient showing intentional noncompliance knows how s/he should act, but has made a conscious decision about his/her way of acting and thus deviates intentionally from the doctor's advice, while patients showing non-intentional non-compliance would like to follow the doctor's advice, but are for some reason unable to do so[3]. From the perspective of healthcare providers, therapeutic compliance is a major clinical issue for two reasons. Firstly, non-compliance could have a major effect on treatment outcomes and direct clinical consequences. Non-compliance is directly associated with poor treatment outcomes in patients with diabetes, epilepsy, AIDS, asthma, tuberculosis, hypertension, and organ transplants and cardiovascular patients [4]. In hypertensive patients, poor compliance with therapy is the most important reason for poorly controlled blood pressure, thus increasing the risk of stroke, myocardial infarction, and renal impairment [5].

To understand better about the patient, there should need an investigation about the perceived problems and this associated with belief about their disease [6]. The non-compliance was co-related with the patient views about his condition, these an acquiesce include several modifiable reason shows to be associated with cardiovascular disease and we categorised patient view about the cause of his/her disease, include fate, age, social habit, hard work, discontinuation of medicine and genetics[7]. Furthermore the reason of non-compliance may be associated with many other cultural and attitudinal factors [8].

Modern medicine has struggled against non-compliance for over half a century. A huge number of non-compliance studies have been produced, but we still face enormous problems of non-compliance [9]. We know that non-compliance is very common and potentially present in practically every medical treatment. We have several methods for measuring non-compliance, but nobody has been able to create a standardized method that would produce reliable results [10]. Research has been able to recognize several factors associated with non-compliance, but our possibilities to improve compliance are very limited. We know that non-compliance is

associated with poor treatment outcomes in many diseases, including cardiovascular disease and hypertension, many patient where shows high discontinuation rates of lipid lowering drugs and antihypertensive medications, this result worsening of their disease condition and may lead to life threatening condition at least in the early stages of treatment. So it's very essential to review the reason of non-compliance of patient.

METHODS:**Study site:**

The study was conducted in department of medicine, Raja Muthiah Medical College, Annamalai University, a 1260 bedded multispecialty tertiary care teaching hospital.

Study design:

The present research is a cross sectional prospective observational study.

Study period and Duration:

The present study is carried out for 6 months period, between November 2015 and April 2016.

Ethical Considerations:

The present study Protocol was submitted and approved by the Institutional Human ethics Committee of Annamalai University.

Selection Procedure:

For present study the patients admitted to medicine wards and coronary care unit [CCU] were enrolled based on the inclusion and exclusion criteria.

Inclusion Criteria:

- The patient who got admitted with various cardiovascular disease.
- Patient with age above 18, including both the gender.
- Patient admitted in CCU with CVD.
- Patient with co morbidity in CVD.

Exclusion Criteria:

- Unconscious patients.
- Patient who are not willing to participate

Designing Data Collection Form

The data collection form was prepared in consultation with the professors from medicine and pharmacy. The designed data collection was tested for its suitability for the current study and it was conducted with small group of study population and they were excluded from the main study. The study revealed that it was suitable. The following data were collected in the designed data collection form like essential information of patients such as inpatient number, patient name, age, gender, date of admission, date of discharge, chief complaints [C/O], risk factors, past medication history,

diagnosis, treatment plan, and other patient details include economic status, education status, economic status, and social habits to retrieve essential data. Informed consent form was observed from subjects prior to starting of the study.

Designing Questionnaire

There are many methods for the measurement of compliance, but none of them can be regarded as the best method of choice. Each method has its own strengths and weaknesses, and it is therefore recommendable to use several methods simultaneously [11]. Present study an effort was made to estimate the compliance. A pilot study was conducted in 16 patients to estimate the relevance of questionnaire and it was corrected again for an accurate outcome. The questionnaire consists of 13 questions, in that eight were used to determine level of compliance and non compliance and 5 were used to determine patient perceptive factors resulting noncompliance. Patient response to each questions were categorised in to five category, which consist of strongly agree[1 point], Agree[2point], Neutral[3 point], Disagree[4 point], Strongly disagree[5 point]. Each answers of

the patient analysed, and up to 24 scored patient were considered as compliance with the treatment. Patient who scored above 24 were chosen to the Non-compliance group.

Data Analysis:

Collected information was analyzed using Microsoft Office Excel 2007. Descriptive data analysis has been performed in the form of frequency and percentage of demographic variables and rate of noncompliance shown as various tables and graphs for better understanding of comparison of both the centres.

RESULTS:

A total of 102 samples were enrolled into the study by applying inclusion and exclusion criteria. The data is retrieved from the cardiovascular disease patient admitted to medicine department; out of these 80 patients were interviewed to obtain the level of compliance. 22 patients were not included in the compliance study because of the early discharge and the patient does not have any history of medication intake.

Table 1: Gender wise distribution

S.no.	Gender	No patients	Percentage
1	Male	62	77.5
2	Female	18	22.5

Table 2: level of compliance and non compliance

S.no.	Result	No patients	Percentage
1	Compliance	25	31.25%
2	Non compliance	55	68.75%

Among 80 patients 62 patients were male and 18 were female, 55 were showing non-compliance to their medication and remaining showed compliance to the medication intake and other patient perceptive factors.

Table 3: Age group and level of compliance

S.No.	Age group	Non compliance			Total patients
		Male	Female	Total	
1	Below 30 years	00	00	00	1
2	30-50 years	12	04	16	22
3	50-70 years	20	06	26	42
4	More than 70 years	09	04	13	15

In the age group below 30, one patient has arrived with complaints, and he is showing compliance with medication intake. Then in the age group of 30-50, out of 22 patients [27.5%] 16 patients where showing non-compliance [72.7%] While in the age group 50-70, Out of 42 patients [52.5%] 26 patients were showing noncompliance [61.90%], and in the age group of patients above 70, out of 15[18.75%] 13 patients were showing non-compliance [86.6%]

Table 4: education status and level of compliance

S.No.	Education	Non compliance			Total patients
		Male	Female	Total [%]	
1	No education	12	10	22	23
2	Primary	21	02	23	34
3	Secondary	04	01	05	12
4	Beyond secondary	04	01	05	11

23 patients reported that they have no education [28.7%] in that 22 patients where showing non-compliance [95.6%], followed by 34 patients [42.5%] have primary education in that 23[67.65%] patients were non-compliance, followed by 12 patients were have secondary education [15%] in that 5 patients were [41.7%] were showing non-compliance, and 11 patient have secondary education in that 5 patients were showing non-compliance [45.45%].

Table 5: Economic status and level of compliance

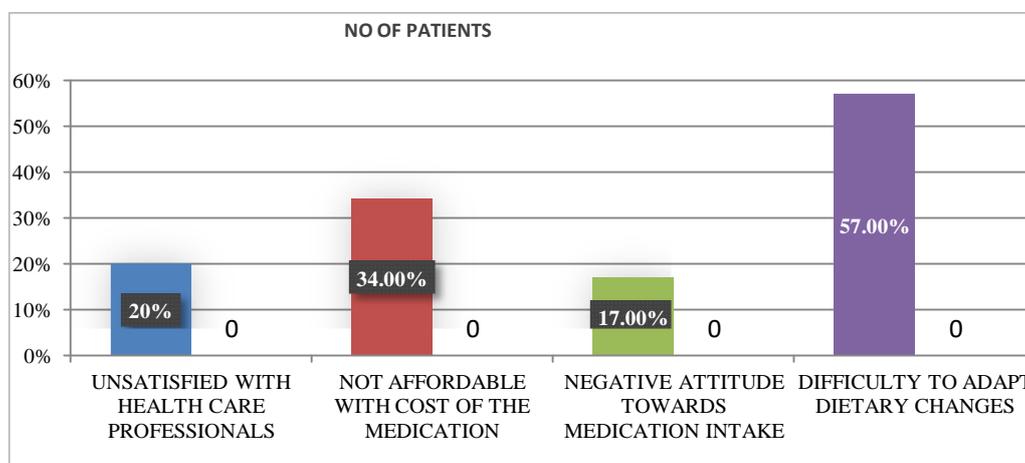
S.No	Low	Non compliance			Total patients
		Male	Female	Total [%]	
1	Low	23	07	30	38
2	Medium	11	05	16	26
3	High	07	02	9	16

38 patients had low economic status[47.5%], in that 30 were non-compliance[78.9%] with the medication, followed by 26 patient shows medium economic status[32.5%] in that 16 were showing noncompliance[61.5%] and 16 patients were in high economic status[20%],in that 9 patient were non-compliance[56.25%] with the medication.

Table 6: Factors resulting non compliance

S.No	Level of factors	No of patients	Percentage
01.	Forgetfulness	52	65.0%
02.	Improper dosing interval	34	42.5%
03.	Lack of knowledge about medication	62	77.5%
04.	Over use/over administration	18	22.5%
05.	Discomfort during administration or after	30	37.5%
06.	Tendency to discontinue medication	47	58.75%
07.	Medication intake in the time of exacerbation	29	36.25%
08.	Un aware about the side effects	76	95%

We are assessing eight factors associated with non-compliance. The main reasons identified for non-compliance in present day study includes, being unaware about the side effects [95%],lack of knowledge about medication [77.5%],forgetfulness[65%],tendency to discontinue medication[58.75%],improper dosing interval[42.5%],discomfort on administration or after [37.5%], medication intake In the time of exacerbation[36.25%] and over use/ over administration[22.5%].

**Fig 1: Patient perceptive factors resulting non-compliance**

Major Patient perceptive factors that associated with non-compliance were Difficulty to adapt dietary changes [57%] and followed by not affordable with cost of the medication [34%], Unsatisfied with health care professionals [20%] and negative attitude towards medication intake [17%].

Table 7: Patient belief about reason of disease

S.No	Belief	No of patients	Percentage
1	Fate	26	32.5%
2	Age	12	15%
3	Hard work	6	7.5%
4	Social habits	10	12.5%
5	Treatment discontinuation	22	27.5%
6	Genetic factors	4	5%

Most of the patient belief that fate was the main reason of their disease[32.5%],then comes treatment discontinuation[27.5%],followed by age[12%],and social habits[12.5%],and remaining people think that their disease was because of their hard work[7.5%] and genetic factors[5%].

DISCUSSION:

It was found that male patients[77.5%] has more chances of occurring cardiovascular disease than female [22.5%], vulnerability of men towards heart problem may due to several factors mainly physical stress, abdominal fat [12]. It was turned out that almost all medically treated CVD patients 25 were compliance [31.25%] and 55 were non-compliance [68.75%] to the treatment, similar observation is reported in syed fayaz et al [13]. Female patients [77.7%] were showing more non-compliance than the male patients [66%], this observation contradicted with the study of E josiko et al [8].

The prevalence rates of reported non-compliance were found to be highest for both Men [60%] and Women [26.6%] in the age group more than 70 [86.6%], middle age group [30-50] and geriatric patients [more than 70] were also showing more noncompliance.

The result of several studies suggests that general education is not associated with the compliance [Richardson et al 1993 and shaw et al 1995] [14, 15] but present study observation contradicted with these findings. The patients with no education [95.6%] showed highest levels of non-compliance, while patients with secondary education [41.7%] and beyond [45.5%] were showed the least noncompliance that means the level of compliance raise with the education status. There is a significant rate of decreasing non-compliance according with the level of increasing economic status; this statement is completely identical in current study and syed fayuz et al [13].

In factors resulting noncompliance, lack of knowledge [77.5%] the same findings were reported in jainaf et al [16]. Forgetfulness [65%] was found to be the next major problems. Almost all patients were unaware about the side effects [95%].One fifth of the patients were unsatisfied with treatment and health care Professional and the same number of patients having a careless attitude

towards their Treatment. One third of patient was feeling difficult to adapt the life style and dietary Changes. Patient belief about their disease was important criteria of generating non compliance, many of the patients did not understand the real situation of the disease and acceptance and adequate knowledge about the situation is very important in improving treatment outcome.

The present study has the following limitations. First, it is difficult to generalize the findings of the study to the entire population since it is hospital based. Secondly, treatment response and long-term side effects of the treatment could not be assessed because of limited hospital stay and follow up. Finally, many numbers of DRPs remains unresolved, because more time was needed for implementing changes.

CONCLUSION:

There is no simple solution for the problem of poor compliance in CVD disease patients; certain strategies can be implemented to overcome the problem. Simplification medication regimen and encouraging the use of patient reminder aids, educating the patient about their disease, especially in geriatric patients and their care givers, explaining details of medication and its potential side effects.

Pharmacists are in an ideal position to deal with non-compliance through building a trustful relationship with their patients especially when physicians lack time to look after the patients. The better the pharmacist understands patients and their disease states, the more willing patients will be to accept recommendations. Pharmacists are uniquely positioned to deal with some of the compliance barriers encountered and thereby optimize the therapeutic benefits

The overall findings from our study was that pharmacists could identify some reasons of non compliance and patient perceived problems, proper

intervention will help in achieving better patient care that can lead to improve the quality of care and drug therapy.

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