Level of Satisfaction Determines the Attitude towards Treatment among Patients with Selected Life-Style Diseases Attending Outpatient Department – Experience from a Pilot Study in a Tertiary Care Hospital

Authors
Dr Arista Lahiri¹, Dr Arup Chakraborty², Dr Nirmalya Manna², Dr Shibaji Gupta¹, Dr Sukanya Ray¹
¹Junior Resident, Dept. of Community Medicine, Medical College & Hospital, Kolkata
²Assistant Professor, Dept. of Community Medicine, Medical College & Hospital, Kolkata
Corresponding Author
Dr Arista Lahiri
Address: 37/3/1 Jaffarpur road, 1st lane, Barrackpore, Kolkata 700122, West Bengal, India.
Email: arista_rgkar2008@rediffmail.com

ABSTRACT
Background: Adherence and positive attitude to treatment is greatly important for non-communicable diseases (NCDs). Satisfaction towards out-patient department (OPD) services influences the attitude towards treatment and therefore adherence. But there is a paucity of studies supporting this fact in Indian context. Satisfaction and adherence to treatment in Indian perspective are needed to be measured keeping in mind the socio-cultural background. With this back-drop the objective of the study was to find out the epidemiological determinants of satisfaction regarding OPD services and attitude regarding treatment; also to identify the relationship among the socio-demographic, clinical factors & level of satisfaction from OPD services and attitude regarding treatment.

Methodology: Patients with selected NCDs attending the General Medicine OPD at Medical College, Kolkata who gave consent were selected by systematic random sampling. Exit interview was done with a pre-designed pre-tested semi-structured schedule.

Results: 46 participants were interviewed. Majority were male, hindu, with lower level of socio-economic status (SES) (modified B G Prasad Scale). Hypertension and diabetes mellitus were identified as the major diagnoses with many participants suffering from more than one NCDs. Majority of the participants were overall satisfied with OPD services, showed overall positive attitude towards treatment and their relationship was statistically significant. Area of residence was significantly related to attitude towards visit adherence.

Conclusion: Statistically significant relationship was observed between overall level of satisfaction & overall attitude regarding treatment. This suggested that in order to increase adherence to treatment in general and adherence to medication, which is vital for control of NCDs, satisfaction of patients from OPD services should not be undermined.

Keywords: 1. Non-communicable diseases, 2. Patient Satisfaction, 3. Attitude towards treatment, 4. Treatment adherence.
BACKGROUND
The life-style related diseases (non-communicable diseases) are now considered as a global epidemic with major incidences in the developed world, while a growing burden is noted year after another in the developing part of the world like in India.\(^1\) As per WHO 1 in every 4 Indian risks dying from a non-communicable disease.\(^2\) These diseases require long-term often life-long treatment in form of drugs, changes in the life-style, dietary modifications and more importantly regular follow-ups. Majority of these patients attend Hospital out-patient departments (OPDs) for their treatment. For chronic diseases, the patients’ attitude regarding the different aspects of treatment is also important. A study conducted in Nigeria by Ogunfowakan and Mora\(^3\) identified patients’ expectations and satisfaction at the hospital clinics to be an important predictor for treatment-seeking behavior. Mohd A. and Chakravarty A.\(^4\) identified several potential areas for patient satisfaction like good behavior of the staffs, short waiting time, cleanliness of the OPD set up etc. They also suggested that satisfaction improves the treatment outcome. Zeller et al.\(^5\) emphasized on the utility of assessing attitude of the patients regarding treatment especially among those with NCDs.

In developing country like India, patient satisfaction and attitude regarding treatment need to be given more emphasis in order to provide quality healthcare particularly in cases of these chronic diseases. It is conceptualized that patients’ satisfaction on availing OPD services and attitude towards treatment will be affected on socio-demographic and clinical interactions. We can also conceptualize that attitude towards treatment itself will depend on the satisfaction level regarding the healthcare services. This study was a pilot study carried out to assess the level of satisfaction and the attitude towards treatment among the follow-up patients with selected NCDs attending the general medicine OPD & to find out any associations.

METHODOLOGY
A cross-sectional descriptive pilot study was carried out at the General Medicine OPD of Medical College & Hospital, Kolkata applying systematic random sampling method. The study was conducted over 2 months period of which data collection was done on 1 week (i.e 6 OPD days) during the scheduled OPD hours. Patients who gave consent and diagnosed with at least one of the life style diseases like hypertension, diabetes mellitus, COPD & arthritis were included. However patients attended the mentioned OPD for the first time and/or had acute presentations and/or cancers along with the selected diseases were excluded from the study. Taking prevalence 56.52% in Medicine OPD (Source: Medical Records Section), allowable relative error 20%, with significance level 5%, the estimated sample size was 46. Approximately 119 follow-up patients attended the OPD per day (Source: Medical Records Section). After the relevant calculations the first patient was randomly selected from first 14 with the selected criteria and then every 15\(^{th}\) patient was selected.

Pre-designed pre-tested semi-structured schedule with questions related to satisfaction and attitude towards treatment structured in the form of a 3-point likert scale was developed based on several in-depth interviews and focused group discussions with respect to the study topic among the patients and structured on the basis of several similar tools like Patient Satisfaction Questionnaire III (PSQ-III)\(^6\), DAI\(^7\) and Morisky Patient Adherence Scale\(^8\). Background data on socio-demographic and clinical profile was also taken from the participants. The schedule was translated into vernacular and was back translated by two different experts. Validity and reliability was established by doing appropriate statistical tests. Exit interview was performed by the principal investigator on the selected patients with the help of the vernacular version of the schedule.

Data was compiled and analyzed with the help of EpiInfo 7 and ‘R’ (version 3.2) software packages. Percentages & odds ratio were used for statistical
representation of the data. Variables dichotomized as per the operational definitions below. The pooled scores were obtained on the basis of weightage analysis (by inverse of variance method) & item-specific scores for variables.

| Satisfied | A pooled score of > 0 in case of the variables related to patient satisfaction |
| Not Satisfied | A pooled score of ≤ 0 in case of the variables related to patient satisfaction |
| Positive Attitude | A pooled score of > 0 in case of the variables related to attitude regarding treatment |
| Negative Attitude | A pooled score of ≤ 0 in case of the variables related to attitude regarding treatment |
| Higher Socio-economic Status | Classes I, II and III as per the Modified B. G. Prasad scale for socio-economic status |
| Lower Socio-economic Status | Classes IV and V as per the Modified B. G. Prasad scale for socio-economic status |
| Urban (Area of Residence) | Patients with area of residence ‘Corporation’ and ‘Municipality’ areas considered together |
| Rural (Area of Residence) | Patients residing in ‘Panchayat’ areas |
| Sedentary Worker | Those who do not perform physically strenuous work, performs majority work at home etc. |
| Non-Sedentary Worker | Those who perform physically strenuous work, like manual laborers, farmers, factory workers etc. |

RESULTS

The mean age of the participants was 52.35 years with standard deviation (SD) 11.225 years (range: 24 – 75 years). Among the participants majority were male (60.9%), hindu (63.0%) resided in panchayat areas (45.7%) and were from nuclear families (52.2%). Equal proportion (23.9%) of study subjects were either educated up to middle school or were illiterate, 4.3% completed higher secondary level of education. Half of the study subjects were from Class IV socio-economic status as per modified B. G. Prasad Scale (modified October 2016). Almost 76.1% were sedentary workers. (TABLE 1)

Majority of the participants interviewed were diagnosed with hypertension (58.7%) followed by diabetes mellitus (52.2%). Among the participants majority were diagnosed with more than one NCD. (FIGURE 1). Though majority of the study subjects were satisfied with the attending physician (93.5%) but a major proportion was not satisfied with the associated health staffs (47.8%) and the amount of time and money spent for various reasons (80.4% each) while attending OPD. Majority of the study subjects felt exhausted after attending OPD (76.1%). Though 58.7% patients were not satisfied with the cleanliness at the OPD, 41.3% patients however were satisfied. As per the total pooled score; 78.3% of the study subjects were satisfied with the overall OPD services. (FIGURE 2). Majority of the study subjects had a positive attitude about visiting the OPD regularly (56.5%) and compliance towards medication advised (73.9%), however regarding life-style modification advises provided positive attitude was observed among 58.7% of the participants. On the other hand the participants predominantly had a negative attitude in performing investigations advised on-schedule (78.3%). On the basis of overall pooled score majority of the study subjects showed an overall positive attitude towards the treatment advised at OPD (87.0%). (FIGURE 3)

Overall level of satisfaction (satisfied/ not satisfied) was statistically significantly associated with overall attitude regarding treatment advised (OR 11.333; 95% CI of OR 1.684 – 76.259). Though not statistically significant but gender (male/female), religion (Hinduism/Islam), area of residence (urban/rural), socio-economic status (higher/lower), type of work (sedentary/non-sedentary); satisfaction with associated health staffs, cost, cleanliness all these documented an odds of more than one regarding overall attitude (positive/negative). (TABLE 2)

A rather protective odds was observed for area of residence (urban/rural) in relation to attitude regarding medication advised (OR 0.158, 95% CI of OR 0.030 – 0.832) and this was statistically significant. Joint family, absence of hypertension, absence of diabetes, having diagnosed with single NCD; overall satisfaction, satisfaction with attending physician, associated health staffs, cleanliness and exhaustion all documented a better odds for positive attitude towards medication.
advised, but were not statistically significant. (TABLE 3)

Favorable and statistically significant attitude regarding regular visit to OPD was observed for religion (OR 4.074, 95% CI of OR 1.146 – 14.481) and area of residence (OR 4.179, 95% CI of OR 1.209 – 14.441). However, statistical significance was observed for satisfaction regarding cost to attitude regarding regular OPD visit with OR 0.155, 95% CI of OR 0.028 – 0.856. (TABLE 4)

Regarding attitude towards life-style modification advises none of the variables considered showed a statistically significant relationship. But higher age, male gender, urban residence, sedentary work, satisfaction with cost documented a better odds ratio. On the other hand Hinduism, joint family type, absence of hypertension, having diagnosed with only single NCD, satisfaction with associated health staffs, not getting exhausted after attending OPD documented an odds ration lesser than one.(TABLE 5). Age was statistically associated with attitude regarding performing investigation on schedule with a protective odds (OR 0.179, 95% CI of OR 0.033 – 0.963). None of the other factors considered had a statistically significant relationship with attitude regarding performing investigation on schedule. (TABLE 6)

### TABLE 1. Distribution of study participants according to socio-demographic characteristics. (n=46)

| Socio-demographic characteristics | Category/Group | Frequency (Percentage) |
|-----------------------------------|----------------|------------------------|
| Age                               | ≤ 30           | 1 (2.1%)               |
|                                   | 31 – 40        | 8 (17.4%)              |
|                                   | 41 – 50        | 13 (28.3%)             |
|                                   | 51 – 60        | 13 (28.3%)             |
|                                   | ≥ 61           | 11 (23.9%)             |
| Sex                               | Male           | 28 (60.9%)             |
|                                   | Female         | 18 (39.1%)             |
| Religion                          | Hinduism       | 29 (63.0%)             |
|                                   | Islam          | 17 (37.0%)             |
| Level of Education                | Illiterate     | 11 (23.9%)             |
|                                   | Just Literate  | 5 (10.9%)              |
|                                   | Below Primary  | 2 (4.3%)               |
|                                   | Primary        | 9 (19.6%)              |
|                                   | Middle         | 11 (23.9%)             |
|                                   | Secondary      | 6 (13.0%)              |
|                                   | HS             | 2 (4.3%)               |
| Area of Residence                 | Panchayat      | 21 (45.7%)             |
|                                   | Municipality   | 12 (26.1%)             |
|                                   | Corporation    | 13 (28.3%)             |
| Type of Family                    | Joint          | 22 (47.8%)             |
|                                   | Nuclear        | 24 (52.2%)             |
| Type of Work                      | Sedentary Work | 35 (76.1%)             |
|                                   | Non-sedentary Work | 11 (23.9%)              |
| Socio-economic status (As per B G Prasad Scale modified October 2016)[10] | Class I(≥6346) | 0 (0.0%) |
|                                   | Class II (3173 – 6345) | 2 (4.3%) |
|                                   | Class III (1904 – 3172) | 12 (26.1%) |
|                                   | Class IV (952 – 1903) | 23 (50.0%) |
|                                   | Class V (≤951) | 9 (19.6%) |
| Factors                        | Variable Category | Overall Attitude Regarding Treatment | Total | Odds Ratio | 95% CI of Odds Ratio | p Value |
|-------------------------------|-------------------|--------------------------------------|-------|------------|----------------------|---------|
|                               |                   | Positive Attitude | Negative Attitude |       |          |                      |         |
| Age                           | Mean & Above      | 19                    | 4               | 23    | 0.452    | 0.74 – 2.757        | 0.662  |
|                               | Below Mean        | 21                    | 2               | 23    |          |                      |         |
| Gender                        | Male              | 25                    | 3               | 28    | 1.667    | 0.297 – 9.341       | 0.891  |
|                               | Female            | 15                    | 3               | 18    |          |                      |         |
| Religion                      | Hinduism          | 26                    | 3               | 29    | 1.857    | 0.330 – 10.446      | 0.798  |
|                               | Islam             | 14                    | 3               | 17    |          |                      |         |
| Area of Residence             | Urban             | 22                    | 3               | 25    | 1.222    | 0.219 – 6.807       | 1.000  |
|                               | Rural             | 18                    | 3               | 21    |          |                      |         |
| Level of Education            | < Middle School   | 22                    | 5               | 27    | 0.244    | 0.026 – 2.286       | 0.384  |
|                               | ≥ Middle School   | 18                    | 1               | 19    |          |                      |         |
| Family Type                   | Joint             | 19                    | 3               | 22    | 0.905    | 0.163 – 5.035       | 1.000  |
|                               | Nuclear           | 21                    | 3               | 24    |          |                      |         |
| SES                           | Higher SES        | 13                    | 1               | 14    | 2.047    | 0.255 – 22.765      | 0.756  |
|                               | Lower SES         | 27                    | 5               | 32    |          |                      |         |
| Type of Work                  | Sedentary         | 32                    | 3               | 35    | 4.000    | 0.676 – 23.671      | 0.274  |
|                               | Non-sedentary     | 8                     | 3               | 11    |          |                      |         |
| Hypertension                  | Absent            | 18                    | 2               | 20    | 1.636    | 0.268 – 9.980       | 0.924  |
|                               | Present           | 22                    | 4               | 26    |          |                      |         |
| Diabetes                      | Absent            | 19                    | 3               | 22    | 0.905    | 0.163 – 5.035       | 1.000  |
|                               | Present           | 21                    | 3               | 24    |          |                      |         |
| Number of chronic diseases    | Single disease    | 28                    | 4               | 32    | 1.167    | 0.188 – 7.252       | 1.000  |
|                               | diagnosed         |                       |                 |       |          |                      |         |
|                               | More than one     | 12                    | 2               | 14    |          |                      |         |
|                               | disease diagnosed |                       |                 |       |          |                      |         |
| Overall Level of satisfaction | Satisfied         | 34                    | 2               | 36    | 11.333   | 1.684 – 76.259      | 0.020  |
|                               | Not Satisfied     | 6                     | 4               | 10    |          |                      |         |
| Satisfaction with attending physician | Satisfied | 37                    | 6               | 43    | --       | --                   | 1.000  |
|                               | Not Satisfied     | 3                     | 0               | 3     |          |                      |         |
| Satisfaction with associated health staffs | Satisfied | 22                    | 2               | 24    | 2.444    | 0.401 – 14.908      | 0.581  |
|                               | Not Satisfied     | 18                    | 4               | 22    |          |                      |         |
| Satisfaction regarding Cost   | Satisfied         | 8                     | 1               | 9     | 1.250    | 0.128 – 12.252      | 1.000  |
|                               | Not Satisfied     | 32                    | 5               | 37    |          |                      |         |
| Satisfaction regarding time spent | Satisfied | 9                     | 0               | 9     | --       | --                   | 0.457  |
|                               | Not Satisfied     | 31                    | 6               | 37    |          |                      |         |
| Exhaustion                    | Not exhausted     | 11                    | 0               | 11    | --       | --                   | 0.337  |
|                               | Exhausted         | 29                    | 6               | 35    |          |                      |         |
| Satisfaction regarding Cleanliness | Satisfied | 17                    | 2               | 19    | 1.478    | 0.242 – 9.028       | 1.000  |
|                               | Not Satisfied     | 23                    | 4               | 27    |          |                      |         |
TABLE 3. Relationship of different socio-demographic and satisfaction variables to attitude regarding medication advised. (N=46)

| Factors                        | Variable Category                  | Attitude Regarding Adherence To Medication Advised | Total | Odds Ratio | 95% CI of Odds Ratio | p Value |
|--------------------------------|------------------------------------|--------------------------------------------------|-------|------------|----------------------|---------|
|                                |                                    | Positive Attitude | Negative Attitude |          |                      |         |
| Age                            | Mean & Above                       | 16                 | 7                | 23       | 0.635                | 0.168 – 2.402 | 0.737  |
|                                | Below Mean                         | 18                 | 5                | 23       |                      |          |        |
| Gender                         | Male                               | 23                 | 5                | 28       | 2.927                | 0.756 – 11.337 | 0.214  |
|                                | Female                             | 11                 | 7                | 18       |                      |          |        |
| Religion                       | Hinduism                           | 23                 | 6                | 29       | 2.091                | 0.547 – 7.989  | 0.459  |
|                                | Islam                              | 11                 | 6                | 17       |                      |          |        |
| Area of Residence              | Urban                              | 15                 | 10               | 25       | 0.158                | 0.030 – 0.832  | 0.045  |
|                                | Rural                              | 19                 | 2                | 21       |                      |          |        |
| Level of Education             | < Middle School                    | 20                 | 7                | 27       | 1.020                | 0.268 – 3.879  | 1.000  |
|                                | ≥ Middle School                    | 14                 | 5                | 19       |                      |          |        |
| Family Type                    | Joint                              | 18                 | 4                | 22       | 2.250                | 0.568 – 8.910   | 0.405  |
|                                | Nuclear                            | 16                 | 8                | 24       |                      |          |        |
| SES                            | Higher SES                         | 10                 | 4                | 14       | 0.833                | 0.204 – 3.409   | 1.000  |
|                                | Lower SES                          | 24                 | 8                | 32       |                      |          |        |
| Type of Work                   | Sedentary                          | 26                 | 9                | 35       | 1.083                | 0.235 – 4.994   | 1.000  |
|                                | Non-sedentary                      | 8                  | 3                | 11       |                      |          |        |
| Hypertension                   | Absent                             | 17                 | 3                | 20       | 3.000                | 0.690 – 13.040  | 0.245  |
|                                | Present                            | 17                 | 9                | 26       |                      |          |        |
| Diabetes                       | Absent                             | 17                 | 5                | 22       | 1.400                | 0.370 – 5.294   | 0.872  |
|                                | Present                            | 17                 | 7                | 24       |                      |          |        |
| Number of chronic diseases     | Single disease diagnosed           | 25                 | 7                | 32       | 1.984                | 0.500 – 7.867   | 0.536  |
|                                | More than one disease diagnosed    | 9                  | 5                | 14       |                      |          |        |
| Overall Level of satisfaction  | Satisfied                          | 28                 | 8                | 36       | 2.333                | 0.526 – 10.346  | 0.468  |
|                                | Not Satisfied                      | 6                  | 4                | 10       |                      |          |        |
| Satisfaction with attending physician | Satisfied                      | 32                 | 11               | 43       | 1.455                | 0.120 – 17.654  | 1.000  |
|                                | Not Satisfied                      | 2                  | 1                | 3        |                      |          |        |
| Satisfaction with associated health staffs | Satisfied                      | 20                 | 4                | 24       | 2.857                | 0.718 – 11.368  | 0.237  |
|                                | Not Satisfied                      | 14                 | 8                | 22       |                      |          |        |
| Satisfaction regarding Cost    | Satisfied                          | 5                  | 4                | 9        | 0.345                | 0.075 – 1.593   | 0.329  |
|                                | Not Satisfied                      | 29                 | 8                | 37       |                      |          |        |
| Satisfaction regarding time spent | Satisfied                      | 9                  | 0                | 9        | --                  | --          | 0.118  |
|                                | Not Satisfied                      | 25                 | 12               | 37       |                      |          |        |
| Exhaustion                     | Not exhausted                      | 9                  | 2                | 11       | 1.800                | 0.329 – 9.840   | 0.771  |
|                                | Exhausted                          | 25                 | 10               | 35       |                      |          |        |
| Satisfaction regarding Cleanliness | Satisfied                      | 15                 | 4                | 19       | 1.579                | 0.398 – 6.263   | 0.756  |
|                                | Not Satisfied                      | 19                 | 8                | 27       |                      |          |        |
## TABLE 4: Relationship of different socio-demographic and satisfaction variables to attitude regarding regular visit to OPD. (N=46)

| Factors                     | Variable Category          | Attitude Regarding Regular Visit To OPD | Total | Odds Ratio | 95% CI of Odds Ratio | p Value |
|-----------------------------|----------------------------|----------------------------------------|-------|------------|----------------------|---------|
|                             |                            | Positive Attitude                      |       |            |                      |         |
|                             |                            | Negative Attitude                      |       |            |                      |         |
|                             |                            | Total                                 |       |            |                      |         |
| Age                         | Mean & Above               | 14                                     | 9     | 23         | 1.426                | 0.442 – 4.598 | 0.766   |
|                             | Below Mean                 | 12                                     | 11    | 23         |                      |         |
| Gender                      | Male                       | 14                                     | 14    | 28         | 0.500                | 0.146 – 1.708 | 0.419   |
|                             | Female                     | 12                                     | 6     | 18         |                      |         |
| Religion                    | Hinduism                   | 20                                     | 9     | 29         | 4.074                | 1.146 – 14.481 | 0.055   |
|                             | Islam                      | 6                                      | 11    | 17         |                      |         |
| Area of Residence           | Urban                      | 18                                     | 7     | 25         | 4.179                | 1.209 – 14.441 | 0.044   |
|                             | Rural                      | 8                                      | 13    | 21         |                      |         |
| Level of Education          | < Middle School            | 13                                     | 14    | 27         | 0.429                | 0.126 – 1.462 | 0.287   |
|                             | ≥ Middle School            | 13                                     | 6     | 20         |                      |         |
| Family Type                 | Joint                      | 12                                     | 10    | 22         | 0.857                | 0.267 – 2.755 | 1.000   |
|                             | Nuclear                    | 14                                     | 10    | 24         |                      |         |
| SES                         | Higher SES                 | 9                                      | 5     | 14         | 1.588                | 0.435 – 5.799 | 0.704   |
|                             | Lower SES                  | 17                                     | 15    | 32         |                      |         |
| Type of Work                | Sedentary                  | 22                                     | 13    | 35         | 2.962                | 0.725 – 12.092 | 0.231   |
|                             | Non-sedentary              | 4                                      | 7     | 11         |                      |         |
| Hypertension                | Absent                     | 11                                     | 9     | 20         | 0.896                | 0.277 – 2.903 | 1.000   |
|                             | Present                    | 15                                     | 11    | 26         |                      |         |
| Diabetes                    | Absent                     | 13                                     | 9     | 22         | 1.222                | 0.380 – 3.935 | 0.969   |
|                             | Present                    | 13                                     | 11    | 24         |                      |         |
| Number of chronic diseases  | Single disease diagnosed   | 18                                     | 14    | 32         | 0.964                | 0.271 – 3.427 | 1.000   |
|                             | More than one disease      | 8                                      | 6     | 14         |                      |         |
|                             | diagnosed                  |                                         |       |            |                      |         |
| Overall Level of satisfaction | Satisfied                 | 20                                     | 16    | 36         | 0.833                | 0.200 – 3.467 | 1.000   |
|                             | Not Satisfied              | 6                                      | 4     | 10         |                      |         |
| Satisfaction with attending physician | Satisfied | 23                                    | 20    | 43         | --                   | --       | 0.333   |
|                             | Not Satisfied              | 3                                      | 0     | 3          |                      |         |
| Satisfaction with associated health staffs | Satisfied | 14                                    | 10    | 24         | 1.167                | 0.363 – 3.749 | 1.000   |
|                             | Not Satisfied              | 12                                     | 10    | 22         |                      |         |
| Satisfaction regarding Cost | Satisfied                 | 2                                      | 7     | 9          | 0.155                | 0.028 – 0.856 | 0.052   |
|                             | Not Satisfied              | 24                                     | 13    | 37         |                      |         |
| Satisfaction regarding time spent | Satisfied | 6                                    | 3     | 9          | 1.700                | 0.368 – 7.845 | 0.757   |
|                             | Not Satisfied              | 20                                     | 17    | 37         |                      |         |
| Exhaustion                  | Not exhausted              | 7                                      | 4     | 11         | 1.474                | 0.365 – 5.958 | 0.844   |
|                             | Exhausted                  | 19                                     | 16    | 35         |                      |         |
| Satisfaction regarding Cleanliness | Satisfied | 10                                    | 9     | 19         | 0.764                | 0.234 – 2.494 | 0.885   |
|                             | Not Satisfied              | 16                                     | 11    | 27         |                      |         |
| Factors                          | Variable Category | Attitude Regarding Life-Style Modification Advises | Total | Odds Ratio | 95% CI of Odds Ratio | p Value |
|---------------------------------|-------------------|---------------------------------------------------|-------|------------|----------------------|---------|
| Age                             | Mean & Above      | Positive Attitude 14 | 9 | 23 | 1.197 | 0.369 – 3.875 | 1.000 |
|                                 | Mean & Above      | Negative Attitude 23 |              |              |                      |         |
|                                 | Below Mean       | Positive Attitude 13 | 10 | 23 | 1.236 | 0.372 – 4.104 | 0.968 |
|                                 | Below Mean       | Negative Attitude 28 |              |              |                      |         |
| Gender                          | Male              | Positive Attitude 17 | 11 | 28 | 0.671 | 0.195 – 2.308 | 0.746 |
|                                 | Male              | Negative Attitude 19 |              |              |                      |         |
|                                 | Female            | Positive Attitude 10 | 8  | 18 | 1.616 | 0.495 – 5.277 | 0.619 |
|                                 | Female            | Negative Attitude 13 |              |              |                      |         |
| Religion                        | Hinduism          | Positive Attitude 16 | 13 | 29 | 0.951 | 0.287 – 3.111 | 1.000 |
|                                 | Hinduism          | Negative Attitude 17 |              |              |                      |         |
|                                 | Islam             | Positive Attitude 11 | 6  | 17 | 1.000 | 0.222 – 2.338 | 0.804 |
|                                 | Islam             | Negative Attitude 14 |              |              |                      |         |
| Area of Residence               | Urban             | Positive Attitude 16 | 9  | 25 | 1.032 | 0.319 – 3.341 | 1.000 |
|                                 | Rural             | Positive Attitude 10 | 9  | 19 | 1.000 | 0.256 – 3.255 | 1.000 |
| Level of Education              | < Middle School   | Positive Attitude 17 | 10 | 27 | 1.000 | 0.222 – 2.338 | 0.804 |
|                                 | ≥ Middle School   | Positive Attitude 10 | 9  | 19 | 1.000 | 0.265 – 3.255 | 1.000 |
| Family Type                     | Joint             | Positive Attitude 12 | 10 | 22 | 1.616 | 0.495 – 5.277 | 0.619 |
|                                 | Joint             | Negative Attitude 15 |              |              |                      |         |
|                                 | Nuclear           | Positive Attitude 15 | 9  | 24 | 1.000 | 0.265 – 3.255 | 1.000 |
|                                 | Nuclear           | Negative Attitude 16 |              |              |                      |         |
| SES                             | Higher SES        | Positive Attitude 8 | 6  | 14 | 0.720 | 0.222 – 2.338 | 0.804 |
|                                 | Higher SES        | Negative Attitude 14 |              |              |                      |         |
|                                 | Lower SES         | Positive Attitude 19 | 13 | 32 | 0.720 | 0.222 – 2.338 | 0.804 |
|                                 | Lower SES         | Negative Attitude 23 |              |              |                      |         |
| Type of Work                    | Sedentary         | Positive Attitude 21 | 14 | 35 | 0.720 | 0.222 – 2.338 | 0.804 |
|                                 | Sedentary         | Negative Attitude 18 |              |              |                      |         |
|                                 | Non-sedentary     | Positive Attitude 6 | 5  | 11 | 1.616 | 0.495 – 5.277 | 0.619 |
|                                 | Non-sedentary     | Negative Attitude 12 |              |              |                      |         |
| Hypertension                    | Absent            | Positive Attitude 9 | 11 | 20 | 1.000 | 0.265 – 3.255 | 1.000 |
|                                 | Absent            | Negative Attitude 18 |              |              |                      |         |
|                                 | Present           | Positive Attitude 18 | 8  | 26 | 1.000 | 0.265 – 3.255 | 1.000 |
|                                 | Present           | Negative Attitude 14 |              |              |                      |         |
| Diabetes                        | Absent            | Positive Attitude 13 | 9  | 22 | 1.000 | 0.265 – 3.255 | 1.000 |
|                                 | Absent            | Negative Attitude 15 |              |              |                      |         |
|                                 | Present           | Positive Attitude 14 | 10 | 24 | 1.000 | 0.265 – 3.255 | 1.000 |
|                                 | Present           | Negative Attitude 16 |              |              |                      |         |
| Number of chronic diseases present | Single disease diagnosed | Positive Attitude 17 | 15 | 32 | 0.453 | 0.117 – 1.751 | 0.404 |
|                                 | More than one disease diagnosed | Positive Attitude 10 | 4  | 14 | 0.453 | 0.117 – 1.751 | 0.404 |
| Overall Level of satisfaction   | Satisfied         | Positive Attitude 21 | 15 | 36 | 0.933 | 0.224 – 3.893 | 1.000 |
|                                 | Not Satisfied     | Positive Attitude 6 | 4  | 10 | 0.933 | 0.224 – 3.893 | 1.000 |
| Satisfaction with attending physician | Satisfied | Positive Attitude 27 | 26 | 43 | 0.453 | 0.117 – 1.751 | 0.404 |
|                                 | Not Satisfied     | Positive Attitude 5 | 3  | 8  | 0.453 | 0.117 – 1.751 | 0.404 |
| Satisfaction with associated health staffs | Satisfied | Positive Attitude 12 | 12 | 24 | 0.453 | 0.117 – 1.751 | 0.404 |
|                                 | Not Satisfied     | Positive Attitude 15 | 7  | 22 | 0.453 | 0.117 – 1.751 | 0.404 |
| Satisfaction regarding Cost     | Satisfied         | Positive Attitude 7 | 2  | 9  | 0.933 | 0.224 – 3.893 | 1.000 |
|                                 | Not Satisfied     | Positive Attitude 20 | 17 | 37 | 0.933 | 0.224 – 3.893 | 1.000 |
| Satisfaction regarding time spent | Satisfied | Positive Attitude 5 | 4  | 9  | 0.453 | 0.117 – 1.751 | 0.404 |
|                                 | Not Satisfied     | Positive Attitude 22 | 15 | 37 | 0.453 | 0.117 – 1.751 | 0.404 |
| Exhaustion                      | Not exhausted     | Positive Attitude 5 | 5  | 11 | 0.453 | 0.117 – 1.751 | 0.404 |
|                                 | Exhausted         | Positive Attitude 12 | 7  | 22 | 0.453 | 0.117 – 1.751 | 0.404 |
| Satisfaction regarding Cleanliness | Satisfied | Positive Attitude 11 | 8  | 19 | 0.453 | 0.117 – 1.751 | 0.404 |
|                                 | Not Satisfied     | Positive Attitude 16 | 11 | 27 | 0.453 | 0.117 – 1.751 | 0.404 |
### TABLE 6. Relationship of different socio-demographic and satisfaction variables to attitude in the context of performing investigations on schedule. (N=46)

| Factors                        | Variable Category | Attitude In The Context Of Performing Investigations On-Schedule | Total | Odds Ratio | 95% CI of Odds Ratio | p Value |
|--------------------------------|-------------------|---------------------------------------------------------------|-------|------------|----------------------|---------|
|                                |                   | Positive Attitude | Negative Attitude |       |          |                      |         |
| Age                            | Mean & Above      | 2                 | 21                | 23    | 0.179    | 0.033 – 0.963        | 0.074   |
|                                | Below Mean        | 8                 | 15                | 23    |          |                      |         |
| Gender                         | Male              | 7                 | 21                | 28    | 1.667    | 0.370 – 7.515        | 0.762   |
|                                | Female            | 3                 | 15                | 18    |          |                      |         |
| Religion                       | Hinduism          | 6                 | 23                | 29    | 0.848    | 0.202 – 3.565        | 1.000   |
|                                | Islam             | 4                 | 13                | 17    |          |                      |         |
| Area of Residence              | Urban             | 6                 | 19                | 25    | 1.342    | 0.323 – 5.577        | 0.963   |
|                                | Rural             | 4                 | 17                | 21    |          |                      |         |
| Level of Education             | < Middle School   | 5                 | 22                | 27    | 0.636    | 0.156 – 2.604        | 0.788   |
|                                | ≥Middle School    | 5                 | 14                | 19    |          |                      |         |
| Family Type                    | Joint             | 6                 | 16                | 22    | 1.875    | 0.451 – 7.802        | 0.608   |
|                                | Nuclear           | 4                 | 20                | 24    |          |                      |         |
| SES                            | Higher SES        | 4                 | 10                | 14    | 1.733    | 0.402 – 7.466        | 0.723   |
|                                | Lower SES         | 6                 | 26                | 32    |          |                      |         |
| Type of Work                   | Sedentary         | 9                 | 26                | 35    | 3.462    | 0.387 – 30.958       | 0.455   |
|                                | Non-sedentary     | 1                 | 10                | 11    |          |                      |         |
| Hypertension                   | Absent            | 5                 | 15                | 20    | 1.400    | 0.343 – 5.709        | 0.913   |
|                                | Present           | 5                 | 21                | 26    |          |                      |         |
| Diabetes                       | Absent            | 3                 | 19                | 22    | 0.383    | 0.085 – 1.723        | 0.359   |
|                                | Present           | 7                 | 17                | 24    |          |                      |         |
| Number of chronic diseases     | Single disease diagnosed | 8          | 24                | 32    | 2.000    | 0.366 – 10.919       | 0.673   |
|                                | More than one disease diagnosed | 2          | 12                | 14    |          |                      |         |
| Overall Level of satisfaction  | Satisfied         | 8                 | 28                | 36    | 1.143    | 0.201 – 6.494        | 1.000   |
|                                | Not Satisfied     | 2                 | 8                 | 10    |          |                      |         |
| Satisfaction with attending physician | Satisfied       | 9                 | 34                | 43    | 0.529    | 0.043 – 6.517        | 1.000   |
|                                | Not Satisfied     | 1                 | 2                 | 3     |          |                      |         |
| Satisfaction with associated health staffs | Satisfied   | 6                 | 18                | 24    | 1.500    | 0.361 – 6.230        | 0.840   |
|                                | Not Satisfied     | 4                 | 18                | 22    |          |                      |         |
| Satisfaction regarding Cost    | Satisfied         | 0                 | 9                 | 9     |          |                      |         |
|                                | Not Satisfied     | 10                | 27                | 37    |          |                      |         |
| Satisfaction regarding time spent | Satisfied     | 3                 | 6                 | 9     | 2.143    | 0.428 – 10.738       | 0.624   |
|                                | Not Satisfied     | 7                 | 30                | 37    |          |                      |         |
| Exhaustion                     | Not exhausted     | 2                 | 9                 | 11    | 0.750    | 0.134 – 4.203        | 1.000   |
|                                | Exhausted         | 8                 | 27                | 35    |          |                      |         |
| Satisfaction regarding Cleanliness | Satisfied     | 3                 | 16                | 19    | 0.536    | 0.119 – 2.410        | 0.647   |
|                                | Not Satisfied     | 7                 | 20                | 27    |          |                      |         |
**FIGURE 1.** Bar chart showing provisional diagnoses of the study participants. (n=46) (Multiple response)

| Diagnosis         | Percentage |
|-------------------|------------|
| Hypertension      | 56.50%     |
| Diabetes Mellitus | 52.20%     |
| COPD              | 10.87%     |
| Arthritis         | 15.21%     |

**FIGURE 2.** Distribution of study subjects as per different variables related to satisfaction about OPD services. (n=46)

| Variable                        | Satisfied | Not Satisfied |
|---------------------------------|-----------|---------------|
| Attending physician             | 93.5%     | 6.5%          |
| Non-medical health personnel    | 52.2%     | 47.8%         |
| Time spent while attending the OPD | 80.4%   | 19.6%         |
| Cost for attending the OPD      | 80.4%     | 19.6%         |
| Cleanliness of OPD              | 58.7%     | 41.3%         |
| Exhaustion following OPD visit  | 76.1%     | 23.9%         |
| Overall level of satisfaction with OPD services | 78.3% | 21.7% |

Different satisfaction variables (pooled variables)
DISCUSSION & CONCLUSION
In this study majority of the study participants were being diagnosed with Hypertension and Diabetes Mellitus, which was consistent with the growing burden of these two diseases. Attitude towards investigation advised and life-style modification advises were found to be poor (negative) among the majority but attitude regarding medication advised was found to be better and the overall attitude regarding treatment was also better among the majority. This is most likely due to over-dependence of the patients regarding medicines & a general lack of awareness regarding life-style measures and importance of investigations.

In their study, Mohd A. and Chakravarty A. found out behavior of staffs, waiting time to be important factors behind OPD satisfaction and affect the treatment-seeking behavior.[4] In this study the behaviors of neither the non-medical staffs nor the doctors seemed to have any statistically significant relationship with the level of overall attitude. In the study conducted at Nigeria [3] age was found to be an important predictor, but in this study no statistically significant association could be established except with attitude towards performing investigations on-schedule. The association between overall level of satisfaction and overall attitude regarding treatment was noted to be statistically significant. It was presumed that satisfaction with time-spent and cost would have a relationship with attitude towards OPD treatment, but there was no such relationship. This may be attributed to relatively small sample size.

Level of education, occupation and type of family was thought to have association with attitude regarding OPD visit, but again no such relationship could be established statistically. However out of the socio-demographic variables religion (Hinduism/Islam) and area of residence (urban/rural) were found to have statistically significant association with attitude regarding visit adherence. This can be understood simply by the fact that it is in general easier for urban population to avail the health services owing to the better communications and accessibility. Still association of religion to attitude towards visit adherence may be due to several socio-cultural factors pertinent to either religion.

![Figure 3: Distribution of study participants as per attitude towards treatment provided. (n=46)](image-url)

**FIGURE 3. Distribution of study participants as per attitude towards treatment provided. (n=46)**
Statistically significant association was not observed between any satisfaction and attitude towards medication advised. Rather, a statistically significant protective relationship was observed in terms of area of residence (urban/rural). This may be explained by the fact that overall life-style is different in urban and rural area. Rural population when attend tertiary care hospitals, tend to depend fully on the treatment advised, which sometimes is not the case with the general urban patients, who have got other healthcare options easily available. Statistically significant association was not observed for presence of hypertension, diabetes mellitus or having single or multiple NCD diagnosis with any of the attitude variables considered in the study. This may be due to a small sample taken in this pilot study. In future, similar studies with the help of the study tool used will be undertaken with a larger sample size in different level of settings, to find out the different relationships among these variables more precisely. Also similar study can be planned with a community-based approach. The results would help us further to identify different areas that require rectification and the amount of impetus required from the point of view of healthcare delivery system in an Indian context for better out-patient management of the NCD patients.

CONFLICT OF INTEREST: None.

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