



## RESEARCH ARTICLE

## OPEN ACCESS

### KIDNEY DISEASES EFFECTS ON HUMAN HEALTH AND CAUSES OF THE CHRONIC KIDNEY DISEASES IN UDDANAM AREA -SRIKAKULAM, A.P, INDIA

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#### ABSTRACT

Uddanam is the end region of the srikakulam, share with the Odessa border .Its distributed 40 villages in the Kaviti, Kanchili, Sompeta. Most of the people were died in pre ripening age, suffering with chronic kidney diseases (CKD) without based on the age period. We are visited the different village areas and collect the survey samples such as water, food habits, usage of medicals, family back grounds and other habits. The water samples are send into the laboratory and collected the water quality such as PH, Minerals like silica, led and other pollutants. Collected the people samples based on the ages who are suffering with chronic kidney diseases and what about their family hierarchy during period between spt-2022 to jun-2024, in this water sample quality PH is ~6.5\6.6 acidic, silica concentration is~40-45mg/l, led concentration is between 4.8-5.2ug(0.022-0.023). According to bureau of Indian standards fluoride permissible (1.5mg/l), but more than 40 villages fluoride (0.74mg/l) levels are identified under BIS standards. The second time collected the data approximately based on the age period (5-20 year), (20-40 year),(40-above year) who suffering with CKD. Groundwater filter with reverse osmosis (RO), its recommending for the drinking and cooking. Its best preventive measure for the decrease of Chronic Kidney Diseases in the Uddanam region.

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## INTRODUCTION

Uddanam region is the north east extension costal line in Srikakulam (latitude: "18.56219–19.16563" N, longitude: "84.30934–84.76844" E).Its mostly distributed in three mandals Kaviti, Kanchili, Sompeta, majorly occupying with Horticulture along with agriculture, especially coconut, cashew, jack fruits. The high percentage of area occupied with sand and semi sand soils, in this lands the water is not stagnant for long time on earth surface and flooding, soil erosion also less due to the high horticulture. The sand soils are quickly absorbed the water in to ground level. This area mostly share with the bank of bay of Bengal and most percentage peoples are depends upon the horticulture and agriculture works, some are depends on the fish catching in the wet land area and Bay of Bengal. Above characters belonging area peoples are suffering with Chronic Kidney Diseases. In this are before one decade approximately 3500 peoples were died by this CKD. Number of medical teams not only Indian ICMR but also America, Australia, European countries...etc were visited and collected the different area water sample diseased blood samples, tested in ICMR laboratories. They were identified according to their collected samples the people using water was pollute with the high level of Silica(~40-45mg/l), led(0.022-0.023) and water acidity (~6.5\6.6) and low levels of fluoride(0.54mg/l). Above values are not alancing to the BIS values Silica (30mg/l), Calcium ((0.54mg/l), Led(Plum bum) (0.004=0.005).

This area peoples are indiscriminately using the pesticides and herbicides to the crops (agriculture, vegetables, horticulture). These chemicals are mixing in to the water and increasing of the water pollution, this pollutants are extra work on the nephrons in the kidney. According to Global Burden of Disease Study CKD India rank is 8th position (Jha and Modi, 2017) comparison to among all fatal diseases. This Uddanam region is cluster of the CKD in Srikakulam, Andhra Pradesh, India (Ganguli, 2016). High polluted mixing to water along with Silica, Led, acidic water, nitrate, aluminum and iron. [Moreover, chromium, led and cadmium were found in trace concentration and these can be harmful to the kidney if such water is consumed for several years in heat stressed geographical regions like Uddanam (Gharibi et al.,). Above polluted water is entering in to the body through drinking water and cooking foods. Its accumulate in the body as bio magnification and more effect to the nephric renal tube walls at the time of Urine formation and filtration. This process has been going on long time, its more burden to the kidneys and kidney function is slowly decrease, finally cause to CKD.

## METHODS AND MATERIAL

We are visited the different areas randomly making as 3groups along with my college students, each group was selected particular areas in every week , monthly four time . We are interact with the local people

and their localities, asked to them different type of questions what we will need like any family history (hierarchy) coming from old generations, food habits, usage of medicines' and based on the age diseased data who are suffering with CKD infections. After we are collected the different samples like water, soil around their localities. We were collected the around 40 samples, out of 40 again taken 20 samples randomly. These samples are send in to the laboratory identified the concentrations of Silica, Led, Fluoride, Water PH and other metals like Iron, Chromium, and Manganese etc. We were did the second survey total diseased persons where we are visited 40 villages (approximately) and collected based on the Heredity hierarchy (Family history) [Moreover, chromium, lead and cadmium were found in trace concentration and these can be harmful to the kidney if such water is consumed for several years in heat stressed geographical regions like Uddanam (Gharibi et al.,)].

## RESULTS AND DISCUSSIONS

**Silica, Led, Water PH and Fluoride levels in the water samples:** We are collected 20 water samples randomly form different areas of the Kaviti, Kanchili, Sompeta in both seasons monsoon and summer. Data (1.0) was collected from the laboratory. The values of Silica, Led, Water-PH, Fluoride following below villages Manikya puram [(39),(4.8),(6.5),(0.8)], Borivanka [(41),(5.3),(6.6),(0.9)], Kusum puram [(43),(5.7),(6.7),(0.8)], Gokarnpuram [(40),(6.2),(6.5),(0.9)], Bejjiputtuga [(42),(6.3),(6.6),(0.8)], Baliyaputtuga [(40),(4.9),(6.5),(0.9)], Baruva [(39),(5.6),(6.5),(0.8)], Gollagandi [(42),(4.8),(6.6),(0.8)], Korlam [(44),(5.3),(6.8),(0.9)], Talatampara [(45),(6.5),(6.6),(0.8)], the avarage value of the uddanam region Silica, Led, Water-PH, Fluoride [41.5\5.34\6.59\0.84].

**Pesticides and other metals data:** We were collected the 20 water sample the different areas in uddanam region by the random process. Detect the below pesticides in the laboratory. Pesticides and herbicides are entering in to the body cells through food chain after they can transform slowly to other organisms through Biomagnification. It also effect to the reanaL tubes of the nephron. Other metals like Iron, Chromium Manganese and other metals also traced in this samples.

age 40 above (116), (total200)], Kusumapuram [(0),(20)(60),(80)], Varaka [(1),(20)(79),(100)], Manikyapuram [(5),(67)(196),(268)], Borivanka [(4),(75)(142),(221)], Bejjiputtuga [(0),(14)(71),(85)], Jagathi [(3),(51)(111),(165)], Kothaputtuga [(1),(53)(146),(200)], Konduputtuga [(0),(39)(82),(121)], Kaviti [(2),(54)(101),(157)], D.Gonapaputtuga [(0),(27)(51),(78)], Narthuputtuga [(0),(27)(68),(95)], Rajapuram [(2),(51)(104),(157)], Silagam [(1),(19)(32),(52)], Jalluputtug [(0),(37)(68),(105)], Kanchili-Talatampara [(5),(61)(156),(222)], Landaputtuga [(1),(43)(104),(148)], Bairipuram [(0),(31)(72),(103)], Pedda Srirampuram [(1),(57) (141),(199)], Salinaputtuga [(1),(54)(123), (178)], Korikanaputtuga [(0),(8)(50),(58)], Kojjiria [(0),(15)(47), (62)], Tanniputtuga [(0),(6)(29),(35)], Kattivaram [(0),(7),(40),(47)], Makarampuram [(1),(43),(104),(148)], Dolagovindapuram [(0), (22)(34),(6)], Kokkiliputtuga [(0),(21)(35),(56)], Konnaiputtuga [(0),(23)(45),(68)], Rusikudda [(0),(16)(28),(44)], Sompeta-Korlam [(1),(17)(33),(51)], Gollagandi [(0),(16)(31),(47)], Benkili\Zinkbadra [(0),(15)(32),(47)], Sompeta(4 streets) [(2),(8)(34),(44)], Baruva\kotturu [(0),(19)(36),(55)], Jegathikesapuram [(1),(13)(21),(35)].

**Based on the Heredity hierarchy (Family history) Diseased number from different areas:** We are collected diseased persons based on the Heredity hierarchy (Family history) visited villages out of 40,selected the 35 villages written below following villages Kaviti- Balliputtuga [age between 10-20(1), age between20-40(11), age 40 above (24),(total-36)], Kusumapuram [(0),(9)(10),(19)], Varaka [(0),(8),(21),(29)], Manikyapuram [(2),(21)(32),(55)], Borivanka [(1),(20)(24),(45)], Bejjiputtuga [(0),(4)(15),(19)], Jagathi [(1),(12)(22),(35)], Kothaputtuga [(0),(13)(25),(38)], Konduputtuga [(0),(8)(19),(27)], Kaviti [(0),(17)(26),(43)], D.Gonapaputtuga [(0),(8)(18),(26)], Narthuputtuga [(0),(13),(16),(29)], Rajapuram [(1),(21)(41),(63)], Silagam [(0),(7)(26),(33)], Jalluputtuga [(0),(9)(24),(33)], Kanchili-Talatampara [(1),(31)(27),(59)], Landaputtuga [(0),(14)(21),(35)], Bairipuram [(0),(11)(15),(26)], Pedda Srirampuram [(0),(13)(20),(33)], Salinaputtuga [(0),(11)(16),(27)], Korikanaputtuga [(0),(2)(14),(16)], Kojjiria [(0),(3)(5),(8)], Tanniputtuga [(0),(0)(2),(2)], Kattivaram [(0),(0)(5),(5)], Makarampuram [(1),(10)(21),(0)], Dolagovindapuram [(0),(4)(7),(11)], Kokkiliputtuga [(0),(2)(6),(8)],

| s.no | Name of the area | Pesticides/herbicides names    | Other metals (Trace)    |
|------|------------------|--------------------------------|-------------------------|
| 1    | Bejjiputtug      | Endosulfon,2.4.D,Monocrotophos | Iron,Chromium,Aluminium |
| 2    | Kanchili         | Endosulfon,2.4.D,Monocrotophos | Iron,Chromium,Aluminium |
| 3    | Borivanka        | Monocrotophos,2.4.D            | Iron,Chromium,Aluminium |
| 4    | Kavity           | Endosulfon,2.4.D,Monocrotophos | Iron,Chromium,Aluminium |
| 5    | baruva           | Endosulfon,2.4.D,Monocrotophos | Iron,Chromium,Aluminium |

### The Average values of Silica, Led, Water-PH, Fluoride Uddanam different areas random samples

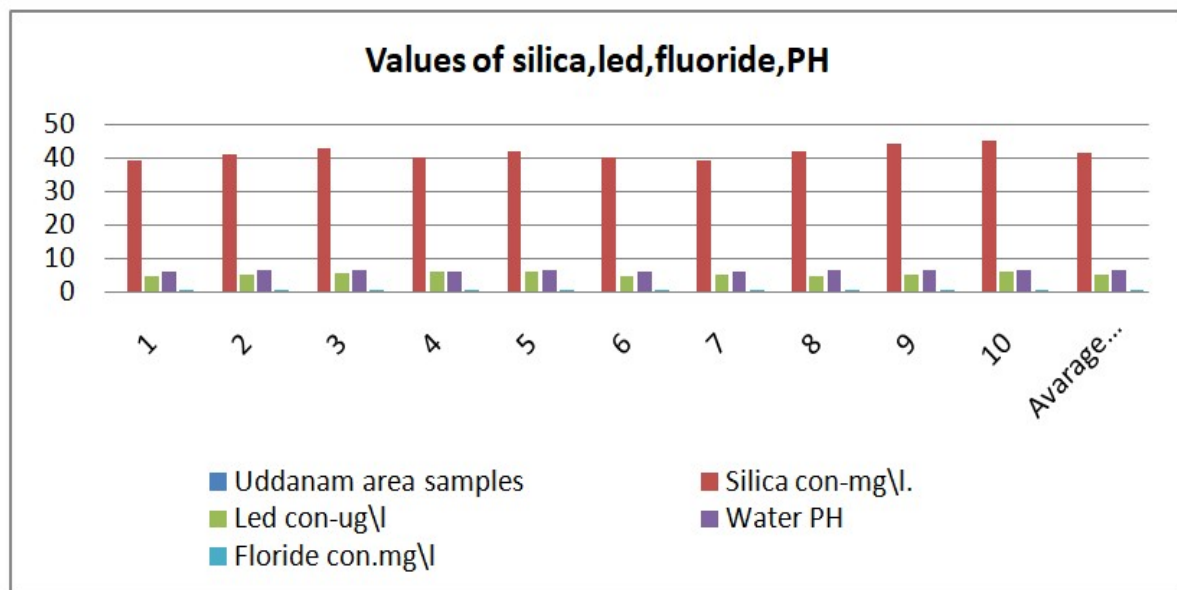
| S.NO          | Uddanam area samples | Silica con-mg\l. | Led con-ug\l | Water PH | Fluoride con.mg\l |
|---------------|----------------------|------------------|--------------|----------|-------------------|
| 1             | Manikya puram        | 39               | 4.8          | 6.5      | 0.8               |
| 2             | Borivanka            | 41               | 5.3          | 6.6      | 0.9               |
| 3             | Kusum puram          | 43               | 5.7          | 6.7      | 0.8               |
| 4             | Gokarn puram         | 40               | 6.2          | 6.5      | 0.9               |
| 5             | Bejjiputtuga         | 42               | 6.3          | 6.6      | 0.8               |
| 6             | Baliyaputtuga        | 40               | 4.9          | 6.5      | 0.9               |
| 7             | Baruva               | 39               | 5.6          | 6.5      | 0.8               |
| 8             | Gollagandi           | 42               | 4.8          | 6.6      | 0.8               |
| 9             | Korlam               | 44               | 5.3          | 6.8      | 0.9               |
| 10            | Talatampara          | 45               | 6.5          | 6.6      | 0.8               |
| Average value |                      | 41.5             | 5.34         | 6.59     | 0.84              |

| S.NO | Name of area sample     | Silica con-mg\l. | Led con-ug\l | Water PH | Fluoride con. |
|------|-------------------------|------------------|--------------|----------|---------------|
| 1    | Uddanam average samples | 41.5-mg\l        | 5.34-ug\l    | 6.59-PH  | 0.84-mg\l     |

**Number of diseased visited 35villages based on the age period:** were visited out of 40 villages, information was gathered from34 based on the age period 3 type 1st age between 10-20 years,2<sup>nd</sup> age between 20-40 years'3rd age above 40 years following the given villages Kaviti -Balliputtuga [age between 10-20(4), age between20-40(80),

Konnaiputtuga [(0),(3)(8),(11)], Rusikudda [(0),(7)(5),(12)], Sompeta-Korlam [(0),(1)(3),(4)], Gollagandi [(0),(2)(6),(8)], Benkili\ Zinkbadra [(0),(3)(5),(8)], Sompeta (4 streets) [(1),(3)(24),(88)], Baruva\kotturu [(0),(5)(7),(12)], Jegathikesapuram [(1),(1)(2),(4)].

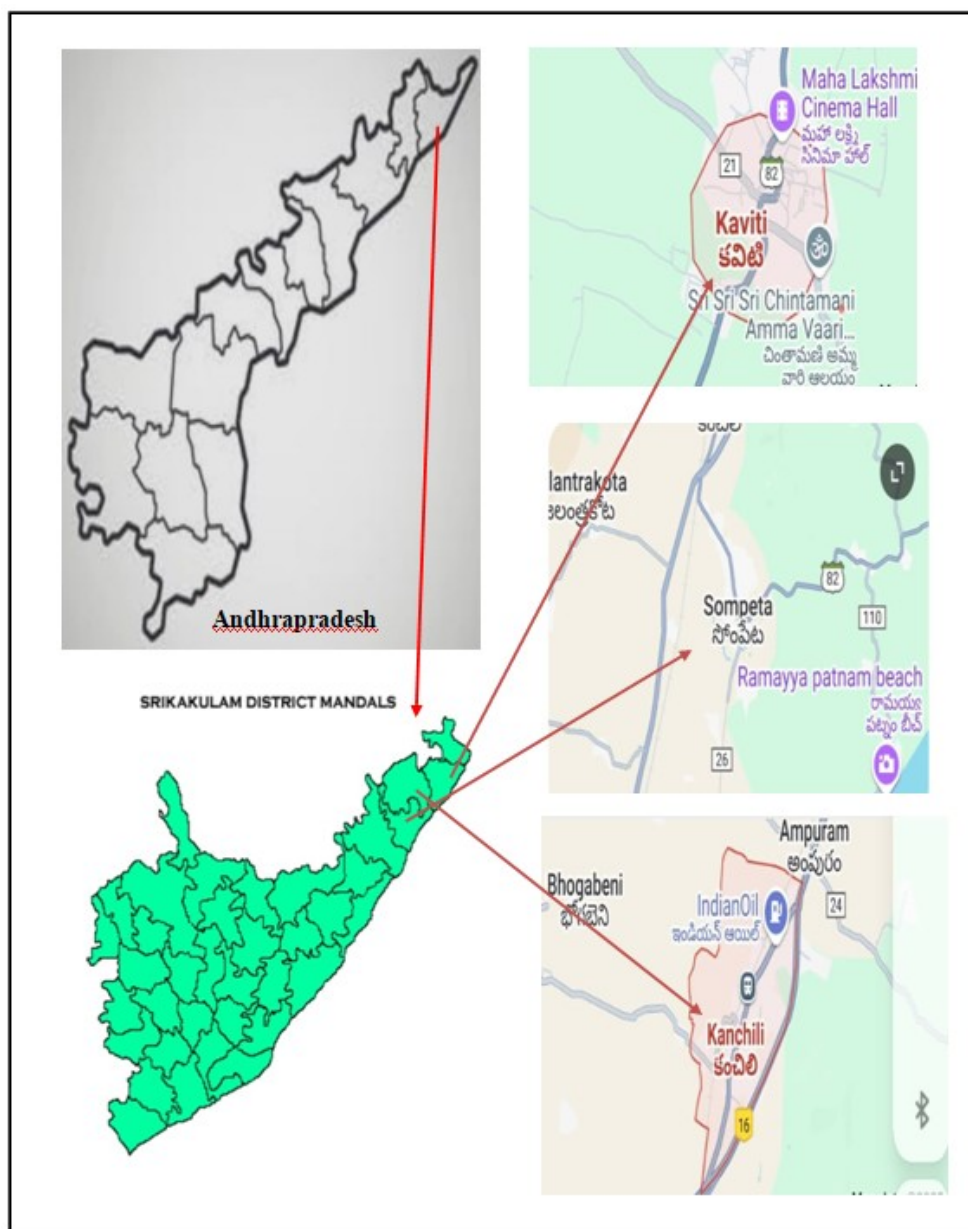
### The Average values of Silica, Led, Water-PH, Fluoride Uddanam different areas random samples



### The Average values of Silica, Led, Water-PH, Fluoride Uddanam different areas random samples graph

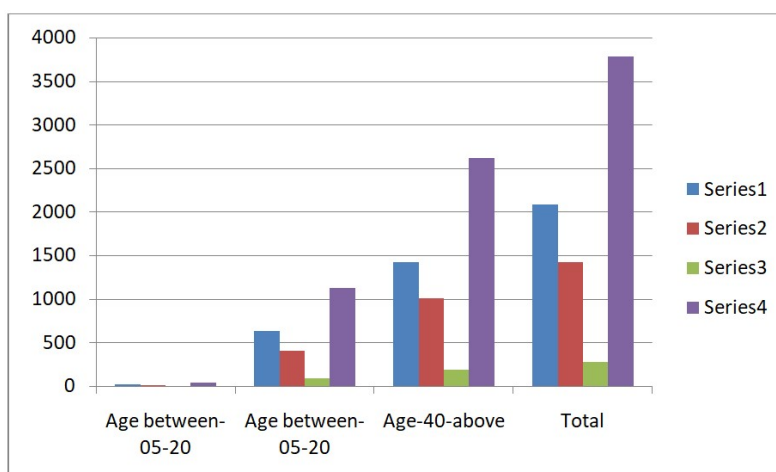
### The data of overall diseased number and Diseased number Based on the hierarchy

| 8    | Mandal/village           |          | Overall diseased number |                   |              |       | Diseased number Based on the hierarchy |                   |              |       |
|------|--------------------------|----------|-------------------------|-------------------|--------------|-------|--|-------------------|--------------|-------|
| S.no | Name of the area/Village | Mandal   | Age between-05-20       | Age between-05-20 | Age-40-above | Total | Age between-05-20                      | Age between-05-20 | Age-40-above | Total |
| 1    | Balliputtuga             | Kaviti   | 4                       | 80                | 116          | 200   | 1                                      | 11                | 24           | 36    |
| 2    | Kusumapuram              |          | 0                       | 20                | 60           | 80    | 0                                      | 9                 | 10           | 19    |
| 3    | Varaka                   |          | 1                       | 20                | 79           | 100   | 0                                      | 8                 | 21           | 29    |
| 4    | Manikyapuram             |          | 5                       | 67                | 196          | 268   | 2                                      | 21                | 32           | 55    |
| 5    | Borivanka                |          | 4                       | 75                | 142          | 221   | 1                                      | 20                | 24           | 45    |
| 6    | Bejjiputtuga             |          | 0                       | 14                | 71           | 85    | 0                                      | 4                 | 15           | 19    |
| 7    | Jagathi                  |          | 3                       | 51                | 111          | 165   | 1                                      | 12                | 22           | 35    |
| 8    | Kothaputtuga             |          | 1                       | 53                | 146          | 200   | 0                                      | 13                | 25           | 38    |
| 9    | Konduputtuga             |          | 0                       | 39                | 82           | 121   | 0                                      | 8                 | 19           | 27    |
| 10   | Kaviti                   |          | 2                       | 54                | 101          | 157   | 0                                      | 17                | 26           | 43    |
| 11   | D.Gonapaputtuga          |          | 0                       | 27                | 51           | 78    | 0                                      | 8                 | 18           | 26    |
| 12   | Narthuputtuga            |          | 0                       | 27                | 68           | 95    | 0                                      | 13                | 16           | 29    |
| 13   | Rajapuram                | Kanchili | 2                       | 51                | 104          | 157   | 1                                      | 21                | 41           | 63    |
| 14   | Silagam                  |          | 1                       | 19                | 32           | 52    | 0                                      | 7                 | 26           | 33    |
| 15   | Jalluputtuga             |          | 0                       | 37                | 68           | 105   | 0                                      | 9                 | 24           | 33    |
| 16   | Talatampara              |          | 5                       | 61                | 156          | 222   | 1                                      | 31                | 27           | 59    |
| 17   | Landaputtuga             |          | 1                       | 43                | 104          | 148   | 0                                      | 14                | 21           | 35    |
| 18   | Bairipuram               |          | 0                       | 31                | 72           | 103   | 0                                      | 11                | 15           | 26    |
| 19   | Pedda Srirampuram        |          | 1                       | 57                | 141          | 199   | 0                                      | 13                | 20           | 33    |
| 20   | Salinaputtuga            |          | 1                       | 54                | 123          | 178   | 0                                      | 11                | 16           | 27    |
| 21   | Korikanaputtuga          |          | 0                       | 8                 | 50           | 58    | 0                                      | 2                 | 14           | 16    |
| 22   | Kojjiria                 |          | 0                       | 15                | 47           | 62    | 0                                      | 3                 | 5            | 8     |
| 23   | Tanniputtuga             |          | 0                       | 6                 | 29           | 35    | 0                                      | 0                 | 2            | 2     |
| 24   | Kattivaram               |          | 0                       | 7                 | 40           | 47    | 0                                      | 0                 | 5            | 5     |
| 25   | Makarampuram             | Sompeta  | 1                       | 43                | 104          | 148   | 1                                      | 10                | 21           | 32    |
| 26   | Dolagovindapuram         |          | 0                       | 22                | 34           | 56    | 0                                      | 4                 | 7            | 11    |
| 27   | Kokkiliputtuga           |          | 0                       | 21                | 35           | 56    | 0                                      | 2                 | 6            | 8     |
| 28   | Konnaiputtuga            |          | 0                       | 23                | 45           | 68    | 0                                      | 3                 | 8            | 11    |
| 29   | Rusikudda                |          | 0                       | 16                | 28           | 44    | 0                                      | 7                 | 5            | 12    |
| 29   | Korlam                   |          | 1                       | 17                | 33           | 51    | 0                                      | 1                 | 3            | 4     |
| 30   | Gollagandi               |          | 0                       | 16                | 31           | 47    | 0                                      | 2                 | 6            | 8     |
| 31   | Benkili Zinkbadra        |          | 0                       | 15                | 32           | 47    | 0                                      | 3                 | 5            | 8     |
| 32   | Sompeta(4 streets)       |          | 2                       | 8                 | 34           | 44    | 1                                      | 3                 | 24           | 28    |
| 33   | Baruva kotturu           |          | 0                       | 19                | 36           | 55    | 0                                      | 5                 | 7            | 12    |
| 34   | Jegathikesapuram         |          | 1                       | 13                | 21           | 35    | 1                                      | 1                 | 2            | 4     |



| S.no | Madal name | Age between-05-20 | Age between-05-20 | Age-40-above | Total |
|------|------------|-------------------|-------------------|--------------|-------|
| 1    | Kavity     | 23                | 634               | 1427         | 2084  |
| 2    | Kavity     | 9                 | 407               | 1008         | 1424  |
| 3    | Sompeta    | 4                 | 88                | 187          | 279   |
|      |            | 36                | 1129              | 2622         | 3787  |

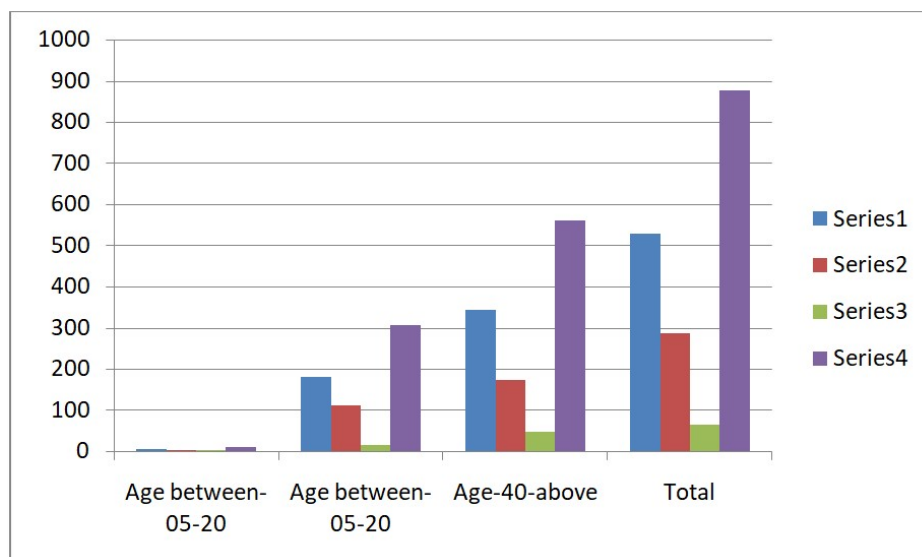
Number of diseased visited 35villages based on the age period



### Number of diseased visited 35 villages based on the age period graph

| S.no | Madal name | Age between-05-20 | Age between-05-20 | Age-40-above | Total |
|------|------------|-------------------|-------------------|--------------|-------|
| 1    | Kavity     | 5                 | 181               | 342          | 528   |
| 2    | Kavity     | 2                 | 111               | 172          | 285   |
| 3    | Sompeta    | 2                 | 15                | 47           | 64    |
|      |            | 9                 | 307               | 561          | 877   |

### Based on the Heredity hierarchy (Family history) Diseased no. from different areas



### Based on the Heredity hierarchy (Family history) Diseased no. from different areas Graph

## CONCLUSION

Health is the major challenge to the present society why because according to human over exploitation, deforestation and modern technologies should major cause to the climatic disasters. The above reasons the pollution is increase day by day along with human activities. So total atmosphere has been polluting like air but also water(<http://www.nfro.cl/site>) and soil. The pollution is major cause to the present indefinitive chronic diseases like chronic kidney disease Uddanam problem CKD is also one of the example to the man made chronic disease, why because the peoples were using the non degradable chemical like pesticides, herbicides. the industries are not following the preventive measures like wastages are directly releasing in to the rivers and oceans without purification. This industrial wastages are belonging to no degradable chemicals and different metal minerals like iron, Manganese, zinc, florin etc (P. Soderland *et al*). These are again entering in to the body through food chain and accumulate by the biomagnifications [Google Scholar]. After they finally cause to the chronic diseases like CKD. In Uddanam area the government has been supplying the RO water through pipe lines from the Gottabarrage reservoir it belonging across the Nagavali river(Developing project)., But its water not reaching to the end of the ordinary people. Present days illiterate peoples are not believe to the scientific theories, they believing old habits only. According to my survey(research) most of the village peoples are drinking only polluted local water from the water tanks, Bore wells, Wells etc. So the government should be conduct the awareness programs in their localities and motivate to them about the chronic diseases like CKD. According to my survey polluted water is major cause to the CKD.

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mandal) more help us to this survey (research) at the time of information gathering.

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