



Introduction

The global community, after continuous efforts over the last few years, has developed an agenda that promises to address the concerns of human development parameters. In September 2015, the post 2015 UN Development Agenda, comprising of 17 Sustainable Development Goals (SDGs)¹ was adopted, replacing the Millennium Development Goals (MDGs). The post 2015, UN Sustainable Development Agenda framework provides an opportunity to renew and integrate efforts in order to meet, to a significant degree, national and global aspirations in a defined time frame. Various governments are adopting different approaches to achieve sustainable development. Smart city, is the one approach that has been identified by International Development Research Center (IDRC) and UNU-EGOV, “Smart Sustainable Cities – Reconnaissance²” identifies that can advance sustainable development goals.

India, from the last couple of years, has directed its development pathway to meet its priorities of employment, economic growth, food, water, improving health indicators, disaster resilience and poverty alleviation. India is aiming to restore its natural capital and adopt transparent and robust governance mechanism along with democratic lines. Global consulting firm, PricewaterhouseCoopers (PwC) study³, ‘Making cities smart and sustainable’ identifies that 98 aspirants for India smart cities and the government incorporating sustainability as a key component. The pillars of a smart sustainable city are also directly or indirectly aligned with the objectives of the SDGs.

Considering India’s demography, where 70% population is living in rural villages of India. According to the study by Center for the Advanced Study of India, University of Pennsylvania, by 2030, India’s urban population is set to reach 590 million, in addition of approximately 300 million to India’s current urban population. In such scenario, the concept and approach of Smart City needs to extended and make it ‘Smart Village’ or ‘Smart Cluster’.

Digital Empowerment Foundation (DEF) and Nokia have rolled out the first pilot ‘Smart Village’ concept, also known as **Smartpur** in Tain in Haryana and in Asoor in Tamil Nadu. The Smartpur project is based on ‘Hub – Spoke’ model that connects Hub village to Spoke villages under the six key areas of development — health, education, livelihood, governance, finance and entertainment—rural entrepreneurs at the spoke centres will further redistribute these services in their respective villages. The main objective of the project is to strengthen the existing six pillars of sustainable

¹ Sustainable Development Goals (SDGs) <https://sustainabledevelopment.un.org/sdgs>

² IDRC & UNU-EGOV study, “Smart Cities for Sustainable Development” accessed on 9th March 2018 <https://unu.edu/projects/smart-cities-for-sustainable-development.html#outline>

³ PricewaterhouseCoopers (PwC) study³, ‘Making cities smart and sustainable’ <https://www.pwc.in/assets/pdfs/publications/2015/making-cities-smart-and-sustainable.pdf>; accessed on 9th March 2018



development goals. To understand the existing gaps in these identified parameters, the baseline survey was conducted in Asoor village and 9 other villages of Kancheepuram, Tamil Nadu. The study identifies the present status of these six pillars in hub and spoke villages.

FINDINGS

Socio-economic demography

- 26% of respondents were illiterate, whereas 18% respondents were graduates.
 - 20% respondents were doing private jobs, while another 16% were farmers.
 - 96% of respondents have their own houses out of that 57% had pucca houses and 21% had semi pucca houses.
 - 56% respondents use open defecation while only 43% has private toilets at home.
 - 93% households have electricity. Out of this 93% households 82% households receive electricity 24 hours per day.
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ICT Information

- 91% of respondents do not have internet connectivity in their home whereas 9% respondents have internet connectivity in their home.
 - 50% male respondents are able to use mobile phones, 1% can use computer/laptops, only 5.3% respondents can use internet
 - 35.3% female respondents can use mobile phones, 1.2% female member can use computer/laptops, and 3.4% female members can use internet.
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Pillar 1: Education

- Majority of the respondents use television, newspapers and radio as source of education related information. Less than 2% of the respondents use mobile phones and internet as source of information.
 - Majority of people (99%) register for higher education courses using offline medium
 - 99% people mentioned that career guidance center is not available in Kancheepuram
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Pillar 2: Livelihoods

- More than 65% of respondents stated that source of their livelihood related information is television. Only 2% of the respondents use internet as their source of livelihood.
 - 98% people in Kancheepuram do not do any part time job.
 - 98% women do not have access to vocational training programs in Kancheepuram
 - 99% people have never attended any life skill training program and only 1% has attended life skill training
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Pillar 3: Financial Inclusion

- More than 68% respondents use television, newspapers and radio as sources of financial related information and less than 1% respondent use mobile phones and internet as a source of information.
 - 87% do not have a debit or credit card in the area.
 - 99.7% households have not activated internet banking facility but only 1 respondent have activated internet banking facility
 - None of them use online bill payment system and 1 respondent had used online ticket service.
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Pillar 4: Health

- The main sources of health related information is television (71%). Only 1% respondents said that they get Antenatal, pre-natal, family planning, information through health workers, ANM etc.
 - Only 2% household access health, medical immunization related information using mobile phone internet.
 - 19% people from Kancheepuram mentioned that they visit hospital once in a month; and 38% said that they visit hospital once in a quarter.
 - 79% people mentioned that online or card payment facility is not available in hospital.
 - 74% people mentioned that they are not satisfied with available health facility within in their village and 21% said that the health facility is satisfactory.
 - 55.4% household does not have health insurance whereas only 1 respondent has insurance and more than 30% people do not know about health insurance.
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Pillar 5: e-Governance

- 82% households have Aadhaar (UID).
- 93% households are not availing any government scheme or entitlement for themselves or their family members.
- 98% of them are unaware about RTI and none of them said that they are able to apply online for certificates.
- Sources of schemes related information is majorly television and newspapers. Only 2% respondents receive schemes related information through mobile phones and internet.

Pillar 6: Entertainment

- 63% never go out of their village for entertainment. While 35% people go to movie theatres once a month.
- 82% people do not purchase any entertainment item such as speakers, songs or films, headphones, etc. online whereas 18% do not know using online platform to buy such items.



About the Project

Smartpur project, ideated by Digital Empowerment Foundation (DEF) and with support from Nokia is a rural entrepreneurship-based model designed to create ideal smart villages in India. Smartpur is a one-year pilot project based on a hub-and-spoke model in two states of the country – Nuh (Haryana) and Asoor (Tamil Nadu). Smartpur is a concept designed for a sampoorana gaon (holistic village) or a digitally-integrated ecosystem where people leverage digital tools to bring efficiency in daily lives, transparency in governance, and economic prosperity for households, and ease of access to various kinds of services and information.

The concept of Smartpur emerges from the underlying idea of integrating technology in the existing five prime pillars of Sustainable Development Goals – 1) education; 2) improving livelihoods; 3) strengthening health services; 4) financial inclusion; 5) improving e-governance services. The project aimed to integrate ‘digital component’ as a mean to access or improvise the existing services to an end and not an end in itself. It is a medium to acquire knowledge as a consumer and disseminate information as a producer, thus serving as tool for empowerment, innovation and communication for the larger community. This forms backbone of the Smartpur’s guiding principles.

With these guiding principles, Smartpur has adopted a rural entrepreneurial-based approach under which the project seeks to create a social enterprise model driven by rural youth and supported by community members, government bodies, private institutions and other relevant stakeholders. These stakeholders will be trained and equipped with digital tools and knowledge resources required to build a strong pool of digital citizens spearheading and transforming the village ecosystem.

With this motivation, DEF and Nokia have initiated Smartpur in Tain in Haryana and Asoor in Tamil Nadu for the pilot project. Both, Tain and Asoor, have been identified as hub villages and linked to nine spoke villages each.

STUDY OBJECTIVE

The objectives of the study were

1. To understand the socio-economic demography of 10 villages in Kanchipuram (Tamil Nadu);
2. To understand the present state of village in the following parameters – ICT information and access of ICT, mobility & availability of basic infrastructure under each parameter - access to services under six pillars - education; livelihoods; health; egovernance and entertainment
3. To identify and measure the target numbers of beneficiaries under each pillar



STUDY METHODOLOGY

As part of the project area, the baseline survey was conducted in 10 villages (Asoor, Kizhperamanallur, Nelveli, Valathottam, Kalur, Vichanthangal, Vedal, Vayalur, Kolathur and Kamugapallam) in Kanchepuram district in Tamil Nadu. The study had entailed both quantitative and qualitative survey methodology. Tools like structured questionnaire, in-depth discussion and observation checklist were used. Structured questionnaire were around eight parameters – 1) social & economic demographic profile; 2) ICT availability & accessibility; 3) education; 4) livelihoods; 5) health; 6) financial inclusion 7) egovernance and 8) entertainment. The data collection tools were applied in the community for collecting information like structured questionnaire with primary target group and in-depth interviews and discussions also were conducted with secondary target group. The questionnaires were developed in an Open Data Kit (ODK Collect), which is an open source data collection tool that runs on Android devices.

Discussions were conducted with communities and key stakeholders, as mentioned in the target group. Emphasis was given on quality assurance during the data collection. Standardized procedure of triangulation of gathered data were followed before report finalization.

Sample size

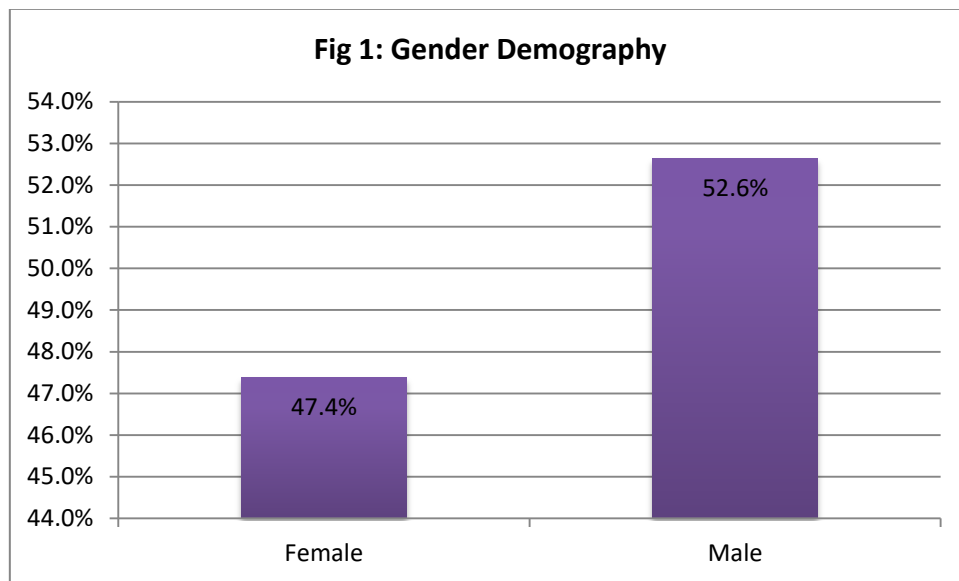
The samples of respondents were selected in a radius of 5 to 10 km around the hub village station on random basis from all villages. The total sample size⁴ was 323 with confidence level of 95%. According to creative survey system, the data was collected from 323 households out of 3087 from Kancheepuram block. The ages of the respondent were 18 years old or above 18. The collected data was analysed in Microsoft Excel. The report comprises of general information of demographic profiles such as age, gender, income, occupation, literacy rate, information regarding ICT skills, information about basic infrastructure and so on.

⁴ <https://www.surveysystem.com/sscalc.htm>

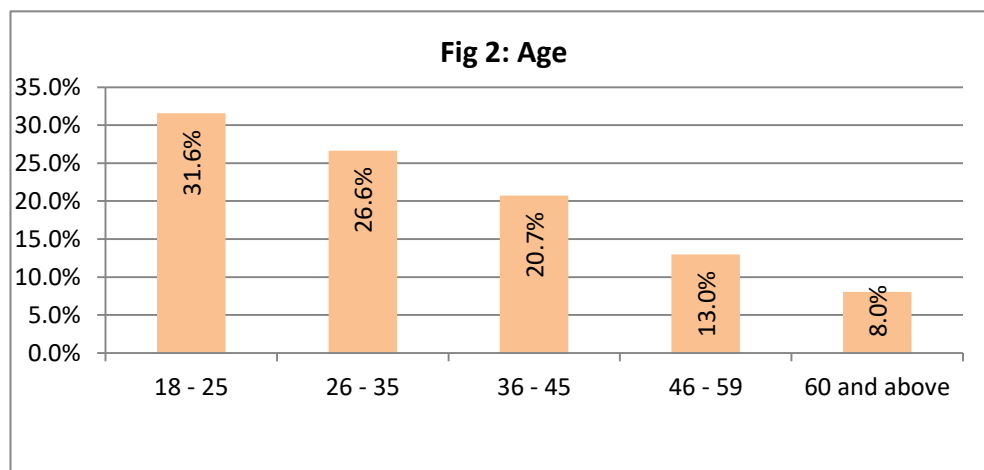
Results of the Study

I. Social & Economic Demography

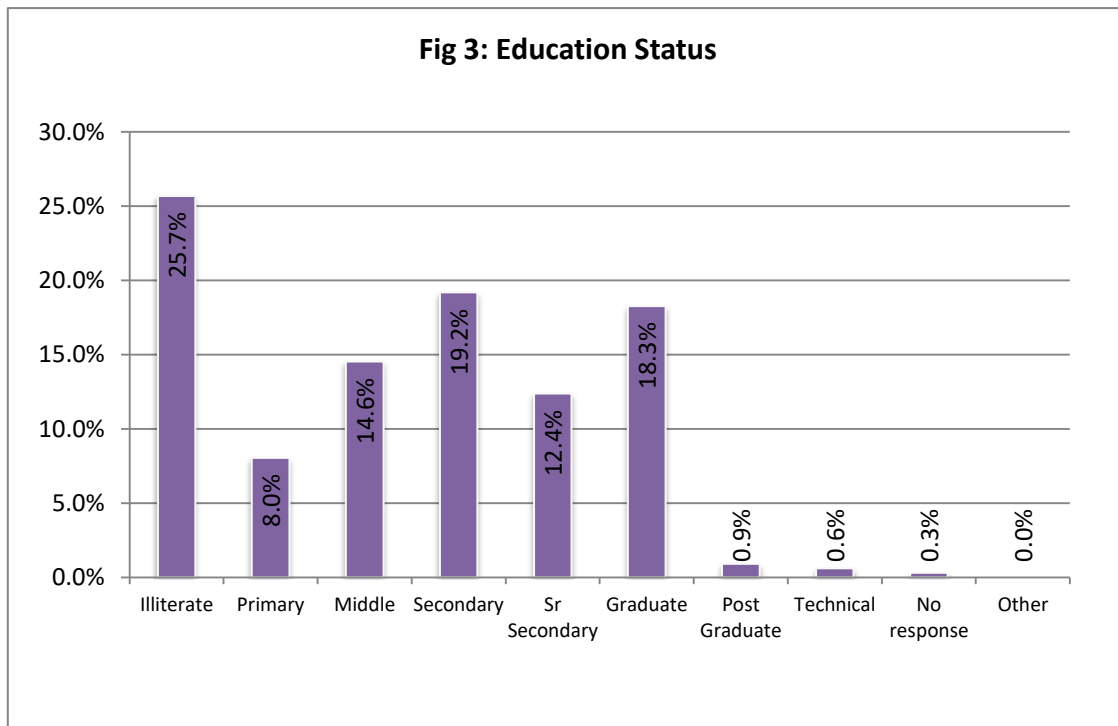
In the baseline survey done in selected locale of Kancheepuram, majority (52.6%) of the respondents were male and rest of the respondents belong to female category. No other gender category was interviewed during the survey.



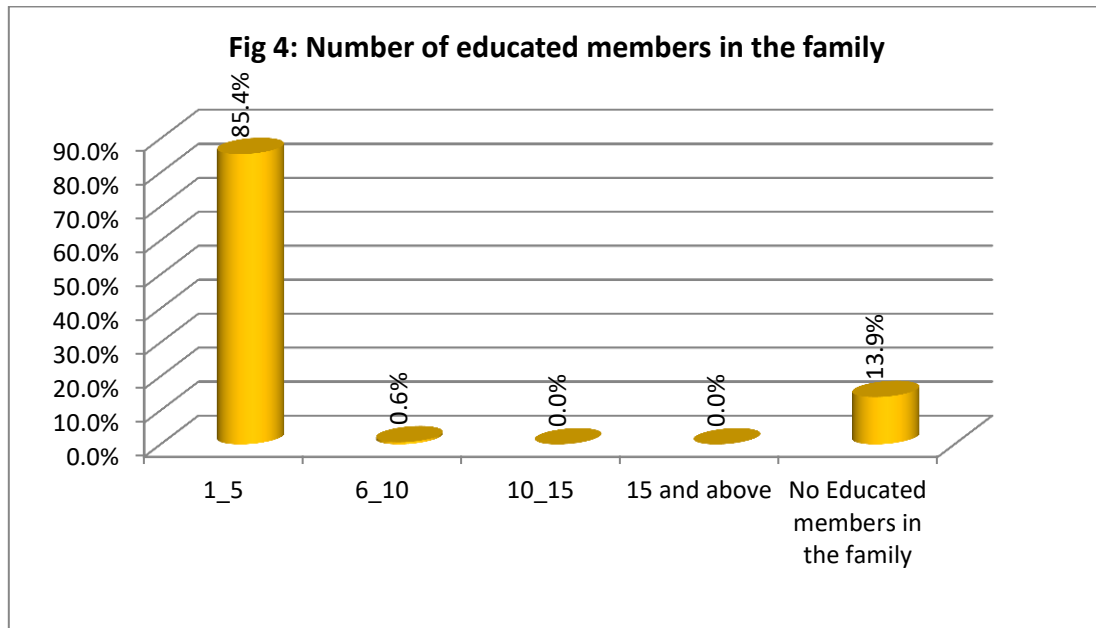
In terms of age of respondents, the Figure 2 shows that majority (31.6%) of the respondents were between 18 and 25 in Kancheepuram followed by the age group of 26 to 36. There were only 8% of the respondents who were above 60 years. In short, the data shows that majority of the respondents were youth. i.e. between the age group of 18 and 35.



Education plays an important role in shaping the quality of life of an individual. Figure 3 clearly shows that near about one-fourth of respondents were illiterate. Considering the data, nearly 8% of respondents had attained the class up to primary level. Another 14.6% of respondents were educated up to middle class. Surprisingly, there were 18% graduate respondents, but unfortunately post-graduated respondents were very few i.e. 0.9% and only 0.6% of respondents had received the technical education.



Considering the data, near about three-fourth of the respondents said that there are 1-5 each educated members in their family. 13.9% of the respondents said that there are no educated members in their family.



It is evident from Figure 5 that only 3% respondent were unemployed in Kancheepuram whereas others were involved in some or other occupation for earning their livelihood. The data also revealed that self-employment such as handloom weaving centre, small stationary shops etc. was the primary occupation for 9% of respondents. Considering the quartile, near about 16% of the respondents are engaged in farming activities as agriculture is the most important occupation for most of the Indian families. The data from Kancheepuram shows that near about 30% respondents were housewives and 20% respondents were private employees. There were only 2% respondents were having government jobs. It is to be noted that majority of the respondents who were interviewed during the survey were housewives.

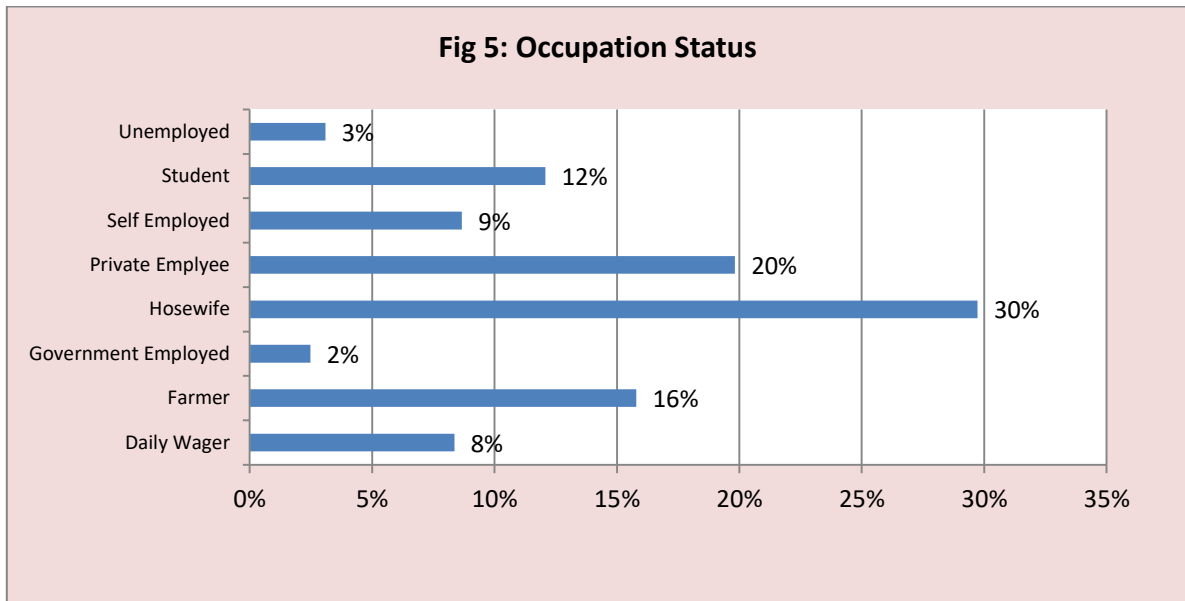
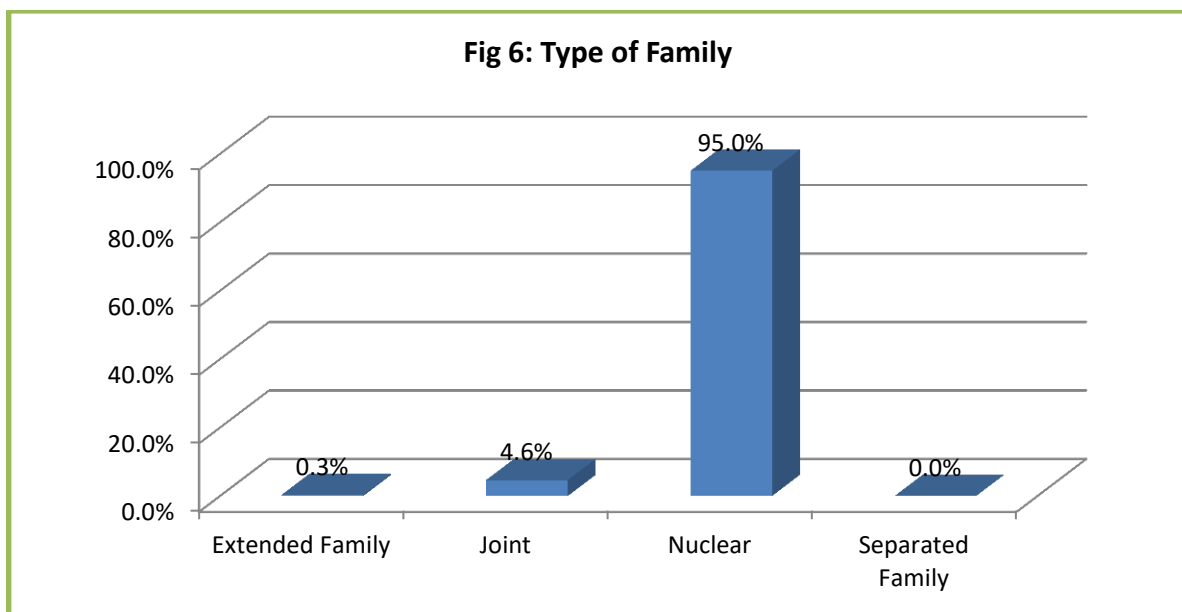


Figure 6 shows the type of family of the respondents. It is clear from the graph that most of the respondents (95%) live in a nuclear family in Kancheepuram. Negligible percentages of respondents live in joint or extended family system in the surveyed location.



II. Family Assets and Facilities

The type of the house in which an individual resides and socializes is likely to have an impact on his beliefs system and in moulding his/her own personality. It is clear from the findings that majority of respondents (95.7%) had their own houses in

Kancheepuram. Less than one percent respondents live in government allotted quarters in the area. There were 57% respondents live in Pacca (burnt brick, concrete) houses in the area. The number of respondents residing in Kachcha (grass, thatched, unburnt Brick, wood, stone w/o mortar) house was much less than the respondents residing in pacca and semi-pacca (stone with mortar, metal, asbestos) houses.

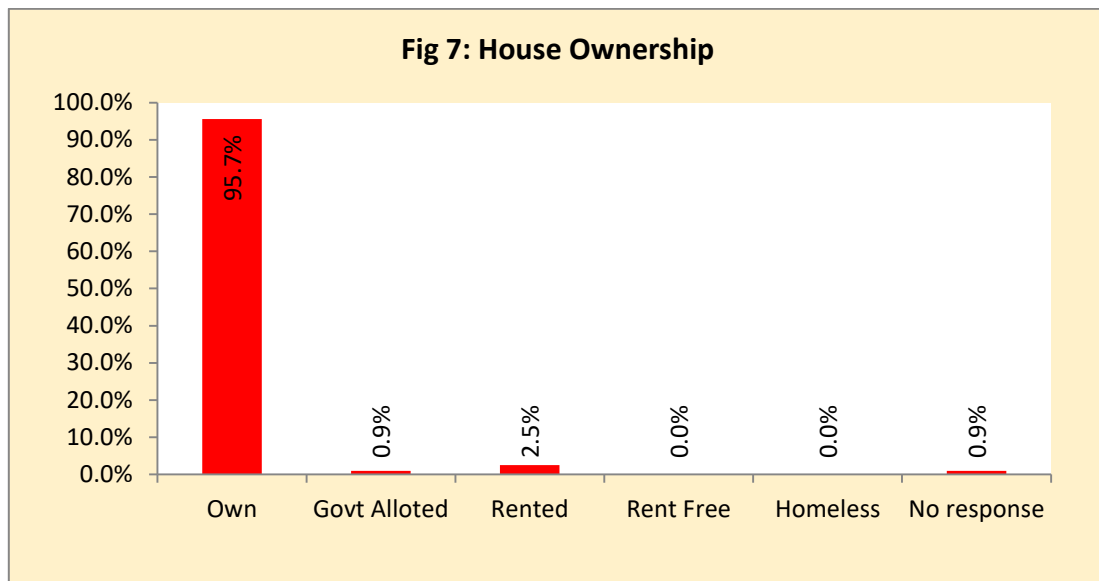
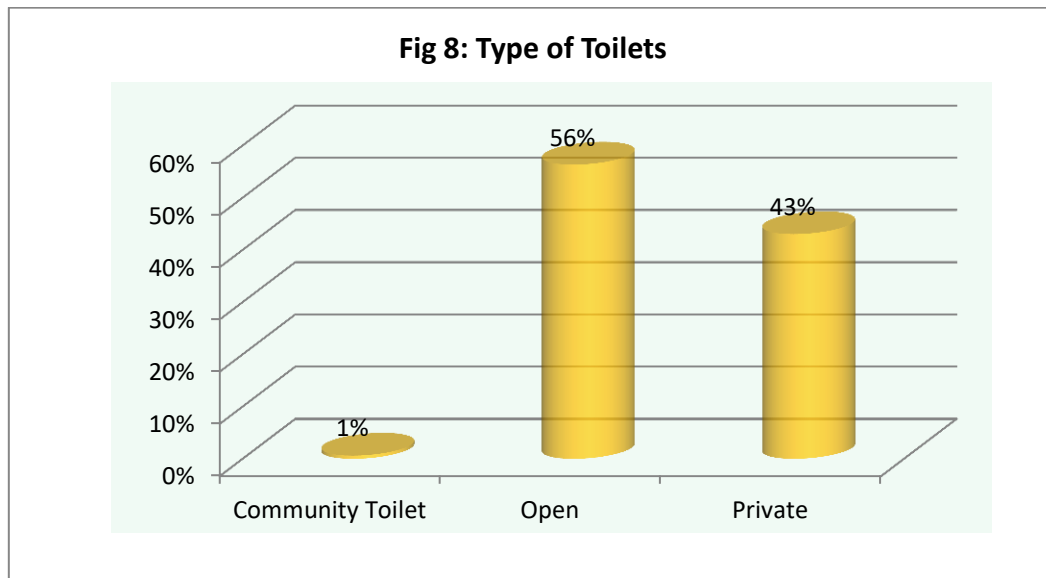


Figure 8 shows that only 43% have private toilets in their houses and surprisingly more than half of the respondents defecate on open space. So, the respondents who defecated openly in the ground either lacked the knowledge on general sanitation and hygiene or didn't have enough money to build the toilets.



Considering the type of vehicles owned by the respondents, some of them own multiple vehicles. It is clear from Figure 9 that more than 63% of the respondents own a two wheeler. Negligible numbers of respondents (1%) own Four Wheeler. Another 6% people own other vehicles such as trucks, pick-up containers for their business purposes and as their livelihoods.

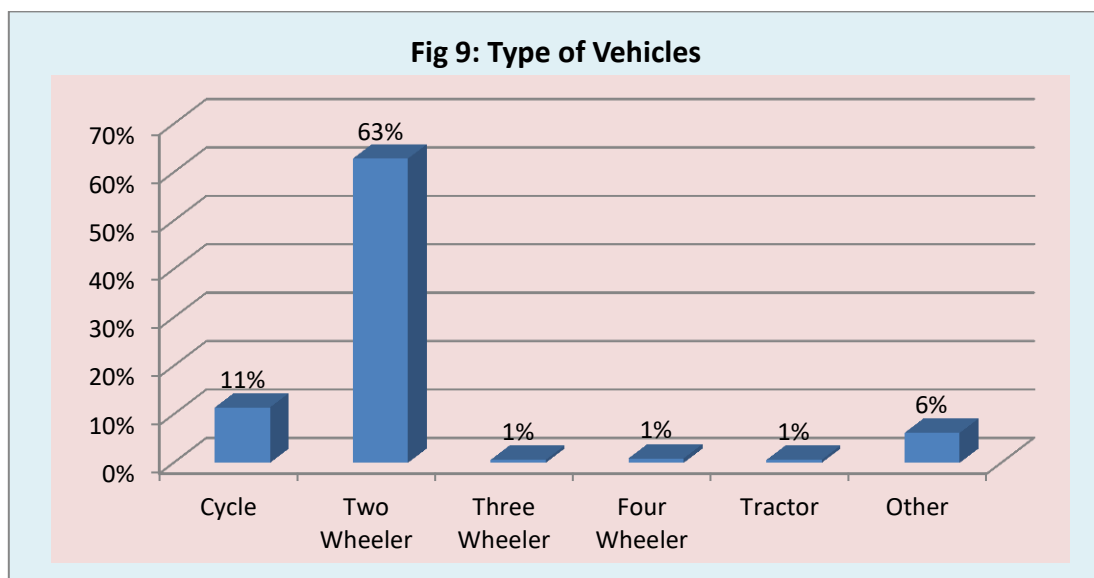
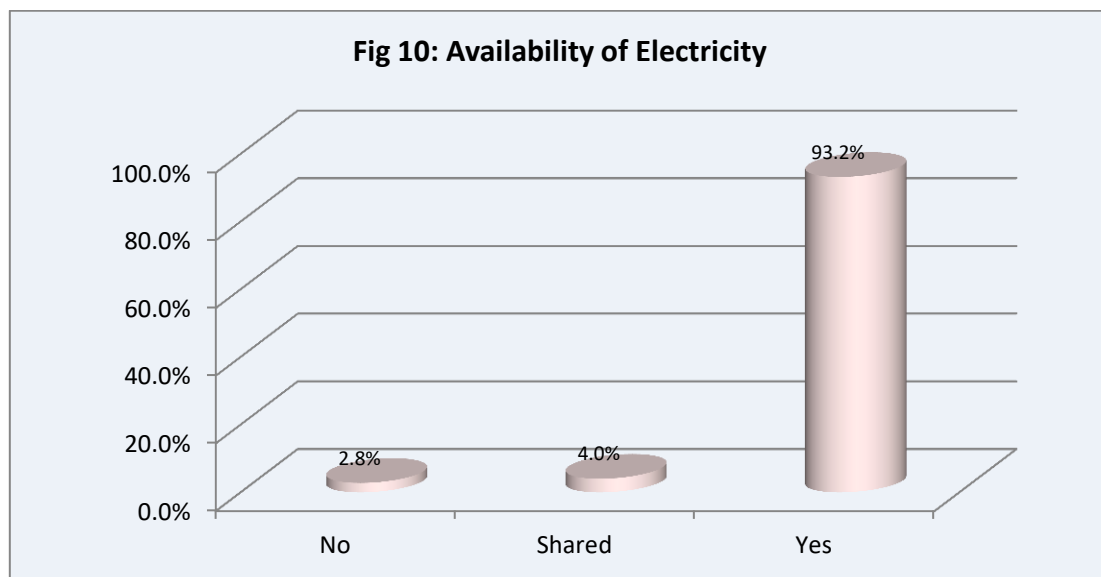




Fig 10 shows the availability of electricity in Kancheepuram. The houses of 93.2% of respondents were provided with the supply of electricity whereas 2.8% of respondents didn't have access to electricity. Remaining respondents use shared electricity.



Among those who had electricity, the data shows that near about 81% of respondents get electricity whole day and 14% said that they avail electricity more than 12 hours in a day. No one responded to any other time span. Most of them said that electricity is an important factor for agriculture, business and even for getting information through TV, Radio and mobile phone

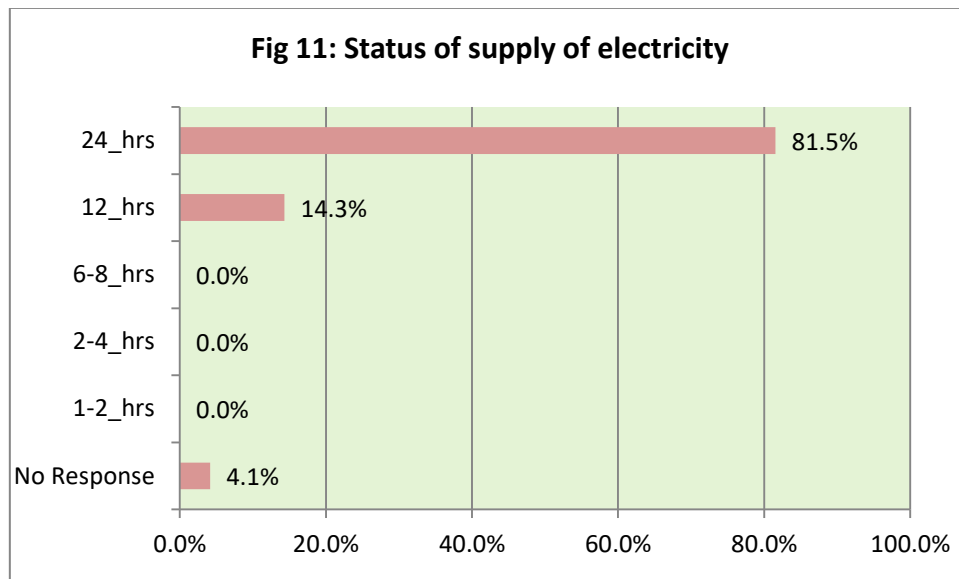
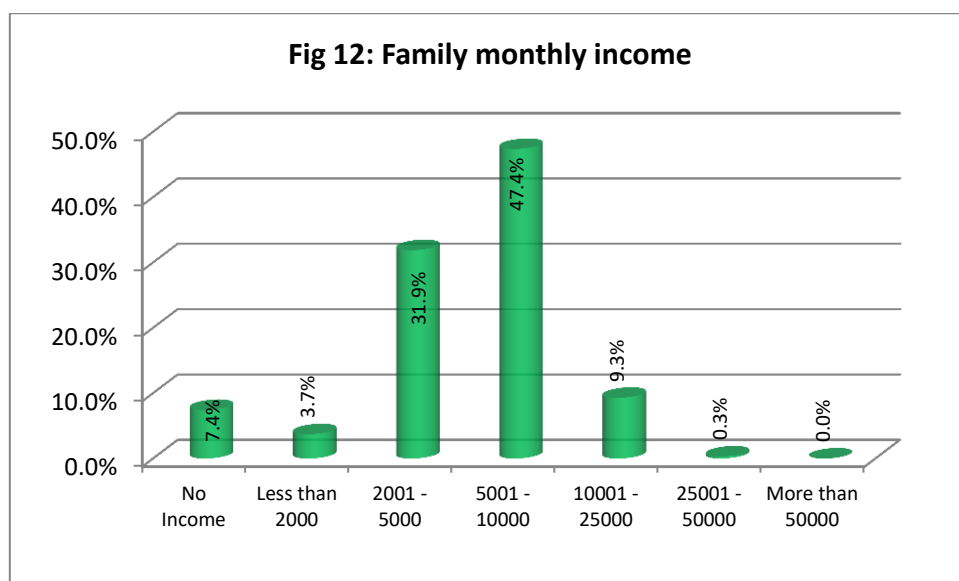
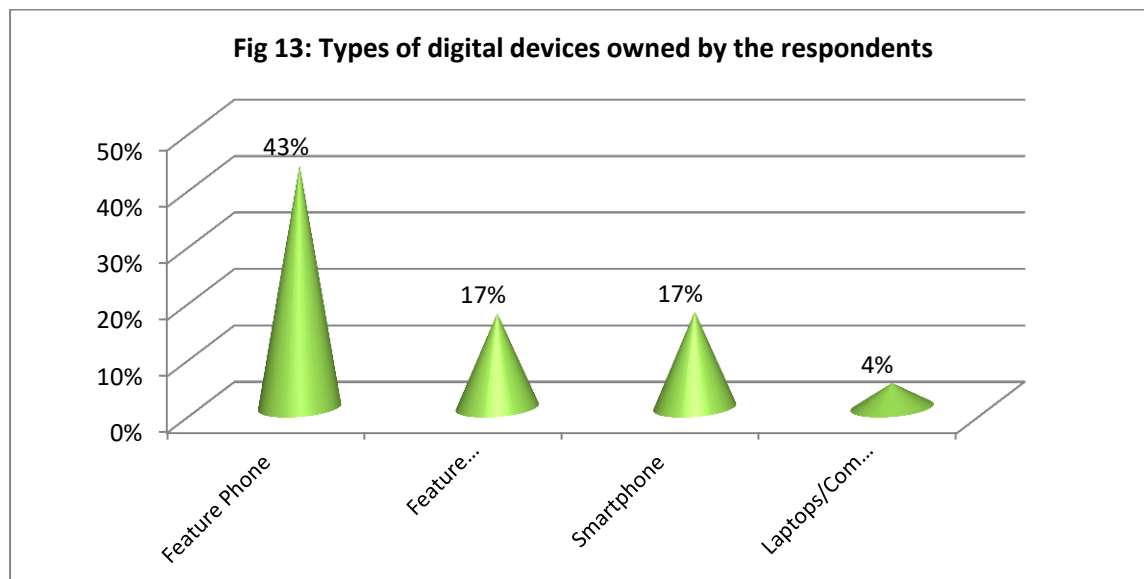


Figure 12 show that 47% households have monthly income between Rs. 5000 to 10000. Approximately 31% respondents have monthly income between 2001 and 5000 in Kancheepuram. Negligible number of respondents has income more than 25000.



III. Ownership and Usage of ICTs

ICTs are considered as the fundamental drivers of development and the learning; the ownership of ICT in form of smart phones, laptop etc. not only enhances the interpersonal communication but also result in adding the new dimensions to the existing knowledge and broadening of the social networks.

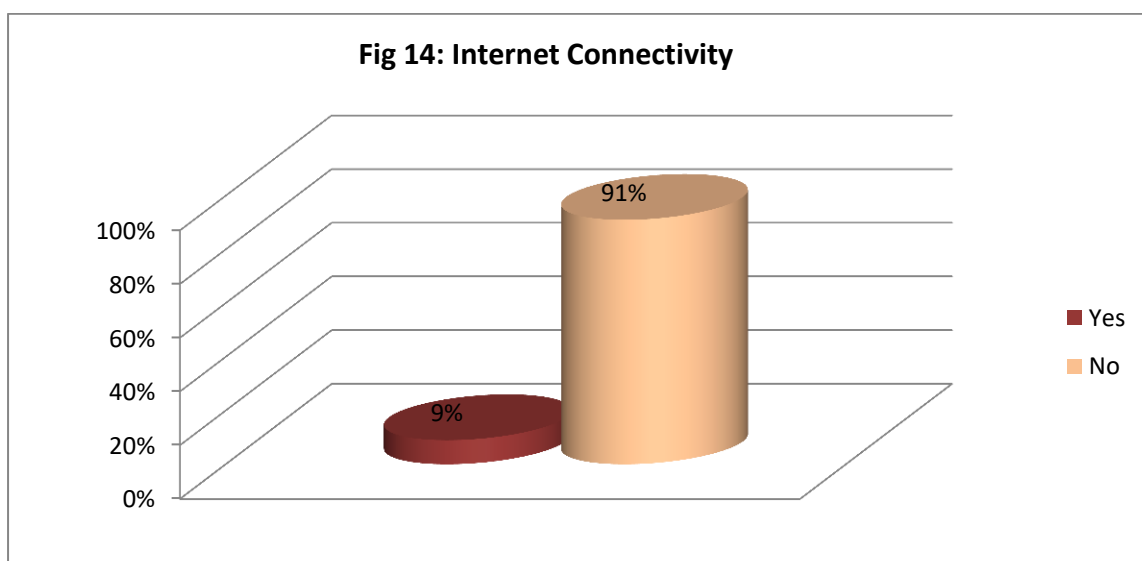


In terms of mobile ownership, majority of respondents (43%) owned basic/feature mobile phones to be used for calls and text because of digitally illiteracy and economic backwardness; and only 17% each respondents had smart phone and feature phone with camera. It is evident from the figure 13 that only 4% of the respondents have computer/laptops.

Further, near about 30% 1 or 2 female respondents can use mobile phones in Kancheepuram where as it is 50% among males. Only a negligible number of respondents can use computer/laptop and internet and social media.



In Kanchipuram there is a huge difference in the availability of internet connectivity. The data shows that 91% of the respondents do not have internet connectivity while only 9% of them have internet connectivity.



IV. Availability & Mobility of Services

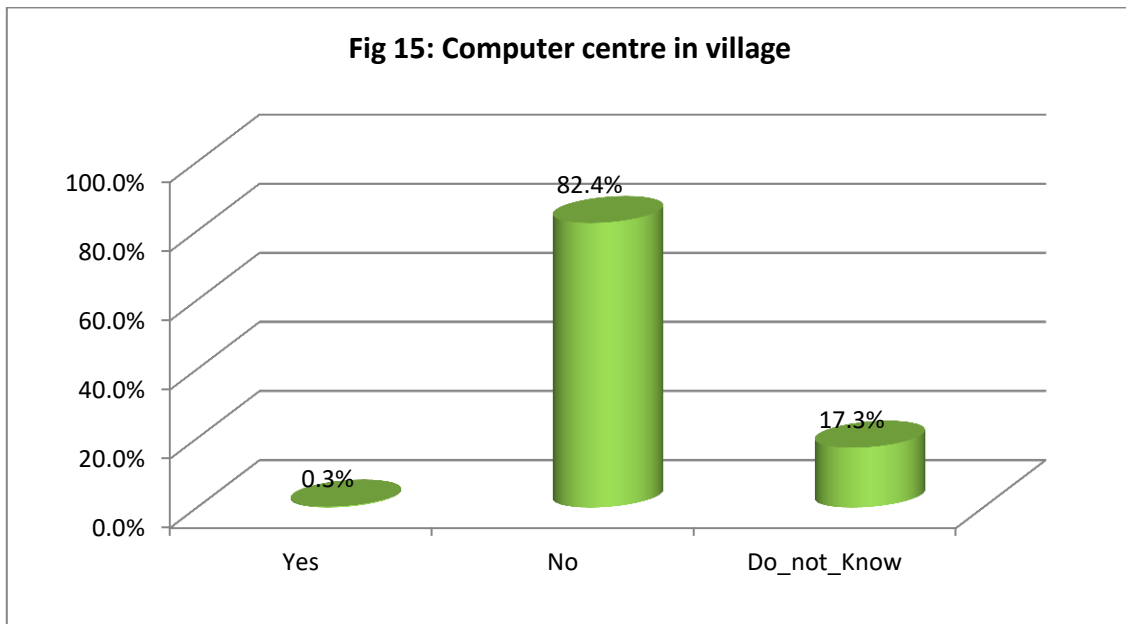
In terms of availability and mobility of services in Kancheepuram, 44% of them said that they can access primary school less than 30 minutes. 45% of the respondents said that they have to travel 30 – 60 minutes to access secondary school. More than 66% respondents said that their nearest graduate college was more than 60 minutes away. Less than half of the respondents said that they don't have a Community Health Centre in their village. Near about 72% said that they do not have a common service centre and an internet browsing shop in their village.

Table 1: Awareness regarding access & mobility

| Access & Mobility | Less than 30 minutes | % | 30 - 60 Min | % | >60 Min | % | Not available | % |
|----------------------------------------------|----------------------|-----|-------------|-----|---------|-----|---------------|-----|
| Nearest Primary School | 142 | 44% | 104 | 32% | 60 | 19% | 17 | 5% |
| Nearest Middle School | 62 | 19% | 144 | 45% | 103 | 32% | 14 | 4% |
| Nearest Secondary School | 20 | 6% | 144 | 45% | 144 | 45% | 15 | 5% |
| Nearest Higher Secondary School / +2 College | 19 | 6% | 137 | 42% | 150 | 46% | 17 | 5% |
| Nearest Graduate College | 7 | 2% | 72 | 22% | 214 | 66% | 30 | 9% |
| Nearest ITI / Polytechnic Centre | 4 | 1% | 77 | 24% | 209 | 65% | 33 | 10% |
| Nearest Bank Branch (Any) | 14 | 4% | 73 | 23% | 173 | 54% | 63 | 20% |
| Aaganwadi centre | 181 | 56% | 47 | 15% | 68 | 21% | 27 | 8% |
| Nearest Primary Health Centre (PHC) | 17 | 5% | 95 | 29% | 110 | 34% | 101 | 31% |
| Nearest Community Health Centre (CHC) | 12 | 4% | 66 | 20% | 98 | 30% | 147 | 46% |
| Nearest Post Office | 17 | 5% | 68 | 21% | 118 | 37% | 120 | 37% |
| Nearest ATM | 17 | 5% | 58 | 18% | 135 | 42% | 113 | 35% |
| Kisan Seva Kendra | 16 | 5% | 41 | 13% | 101 | 31% | 165 | 51% |
| Agriculture Credit Cooperative Society | 21 | 7% | 63 | 20% | 79 | 24% | 160 | 50% |
| Milk Cooperative /Collection Centre | 11 | 3% | 39 | 12% | 106 | 33% | 167 | 52% |
| Veterinary Care Centre | 8 | 2% | 47 | 15% | 101 | 31% | 167 | 52% |
| Bus Stop | 43 | 13% | 100 | 31% | 107 | 33% | 73 | 23% |
| Railway Station | 4 | 1% | 23 | 7% | 124 | 38% | 172 | 53% |
| Public Library | 19 | 6% | 22 | 7% | 66 | 20% | 216 | 67% |
| Common Service Centre | 6 | 2% | 28 | 9% | 58 | 18% | 231 | 72% |
| common sanitation complexes (Public toilets) | 8 | 2% | 37 | 11% | 53 | 16% | 225 | 70% |
| Youth Clubs | 1 | 0% | 9 | 3% | 43 | 13% | 270 | 84% |

| | | | | | | | | |
|------------------------|---|----|----|----|----|-----|-----|-----|
| Internet browsing shop | 5 | 2% | 24 | 7% | 61 | 19% | 233 | 72% |
|------------------------|---|----|----|----|----|-----|-----|-----|

82.4% of people from Kancheepuram state that there is no computer centre in their village. Negligible number of respondents said they have computer centre in the village. Surprisingly, 17% do not know whether there is a computer centre in the village.



V. Pillar 1: Education

Education plays an important role in people's life. With the advent of technology and internet it has become easier in bigger towns. Registration of higher courses etc. has become much easier. But it is not the case in rural India. The data from Kancheepuram shows that majority (99%) respondents register for higher course on offline mode. Regarding career guidance centre in the village, 99% of them said that they do not have one. People have to visit schools or employment office at their district head-quarters for availing job related information.

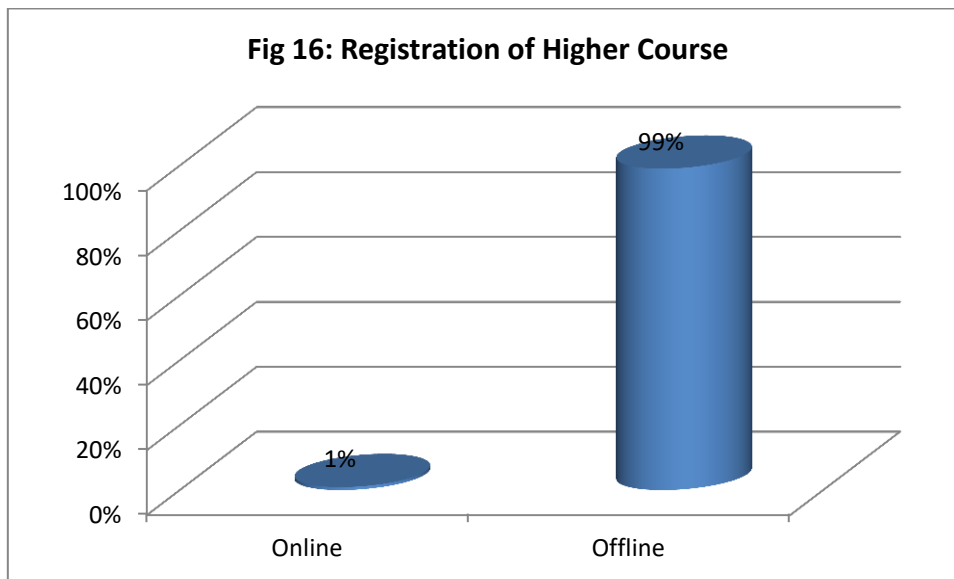
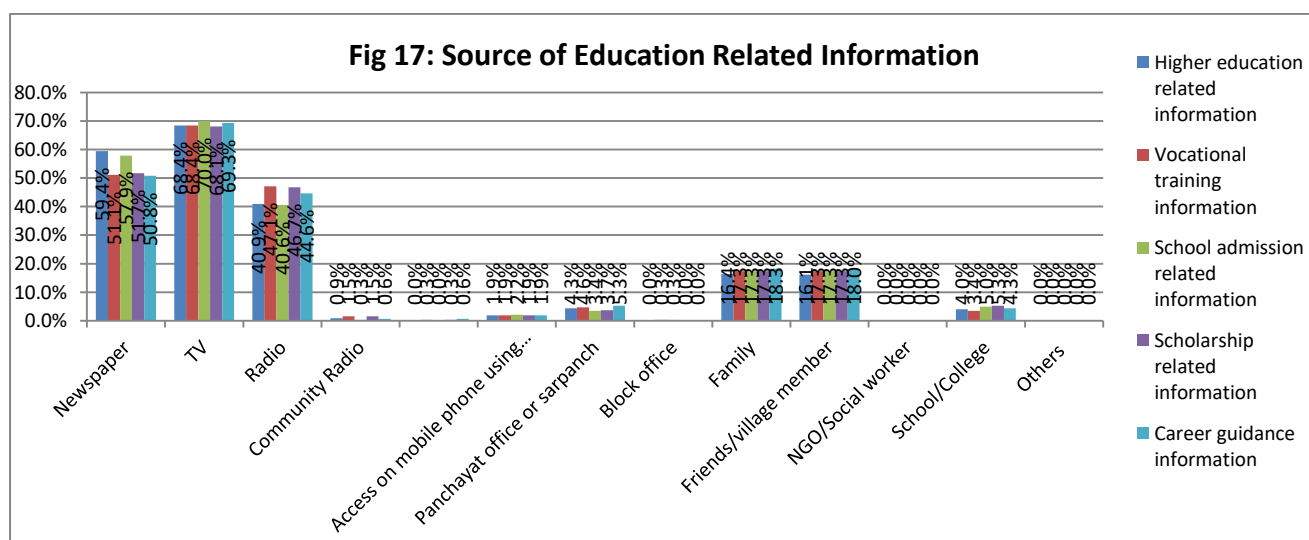
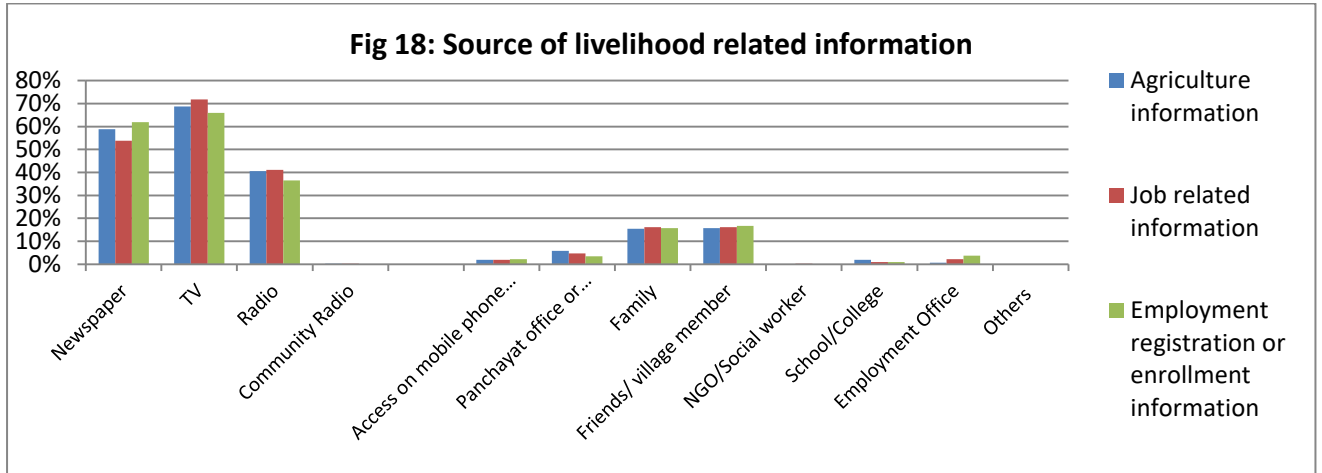


Fig 17 shows that majority of the respondents receive education related information from Television followed by Newspaper and Radio in Kancheepuram. At the same time only 2% respondents said that they receive higher education related information through mobile phones using internet and social media, YouTube etc.

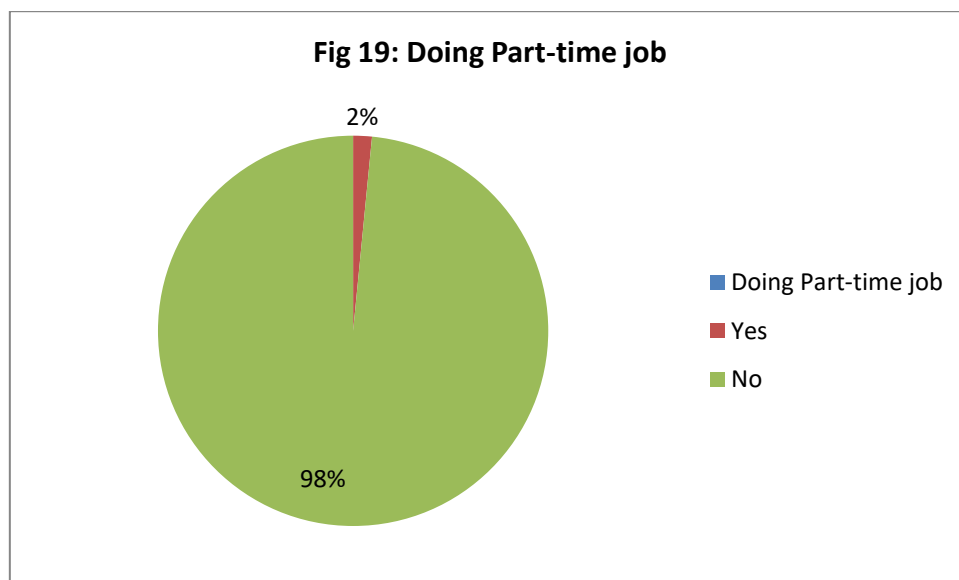


Pillar 2: Livelihoods

It is clear from the figure 18 that majority of the respondents from Kancheepuram receive livelihood related information through television, newspaper and radio. Only 2% respondents receive information from mobile phones using internet, social media, YouTube etc. Negligible number of respondents said that they get livelihood related information from employment office.



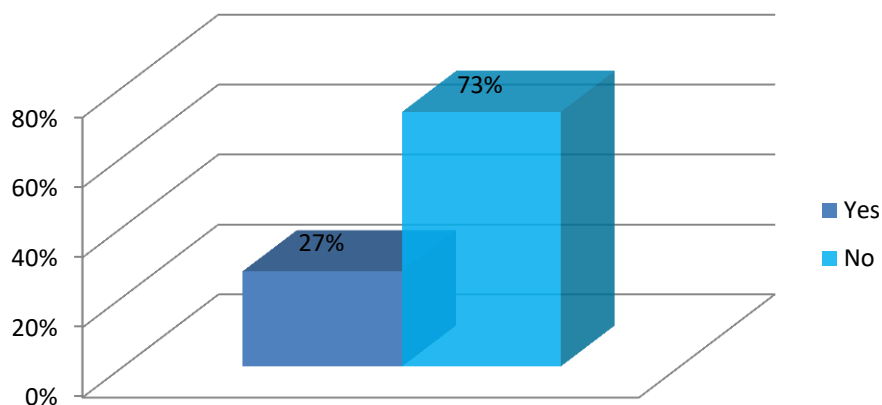
98% don't do the part-time job in Kancheepuram. Regarding using online job portals, only 1 respondent has used online job portal service in Kancheepuram. None of the respondents have used online interview services in the village. This reflects that there is minimal knowledge about using various online resources related to employment opportunities. When we discussed about vocational training centre, all the respondents said that they do not have a vocational training centre.



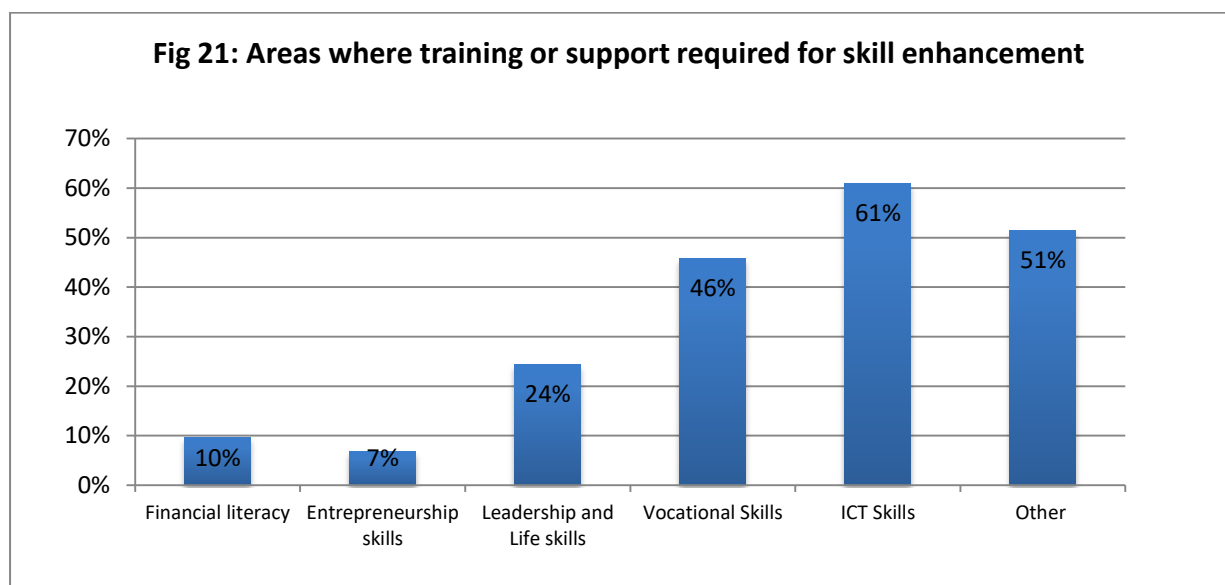


2% respondents said that women have access to various vocation training programmes in schools, self-help groups etc. in Kancheepuram. Surprisingly, 73% respondents from Kancheepuram stated they don't want their female members to attend any training programs and 27% households want their female members attend training programs in Kancheepuram.

Fig 20: Family member like to have training programmes for their female family member within their village

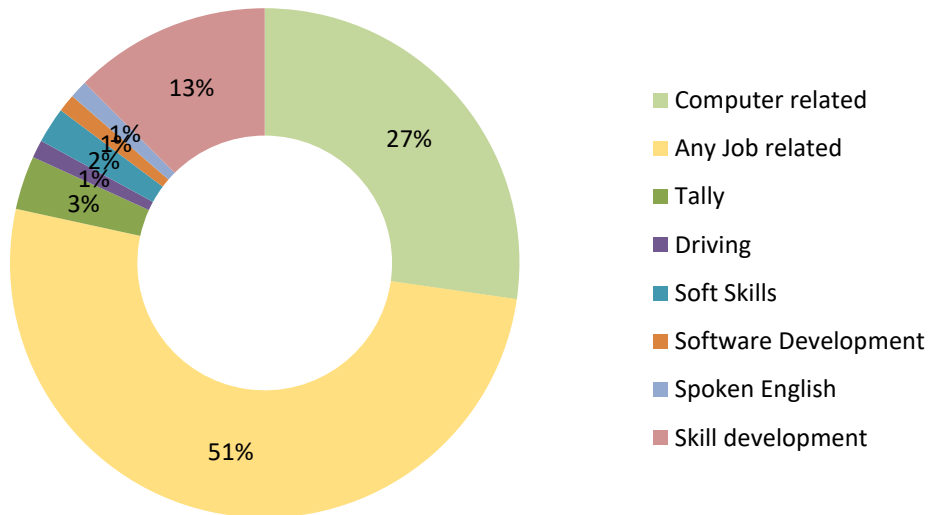


When asked about the areas where people need support or training for skill enhancement majority of them stated that they need training and support in ICT skills enhancement. Less than half of the respondents are in need of vocational skill enhancement. Negligible number of respondents responded for financial literacy training and entrepreneurship skill enhancement training. 51% asked for other type of skill enhancement such as driving, spoken English, mechanical, plumbing etc.



When asked about what are suitable vocational training programs for women Fig 22 shows that 27% respondents recommended for computer related job training and half of the total respondents said that they need any kind of job related training in their village. Negligible percent of respondents recommended training in Tally, driving, soft skills, software development and spoken English.

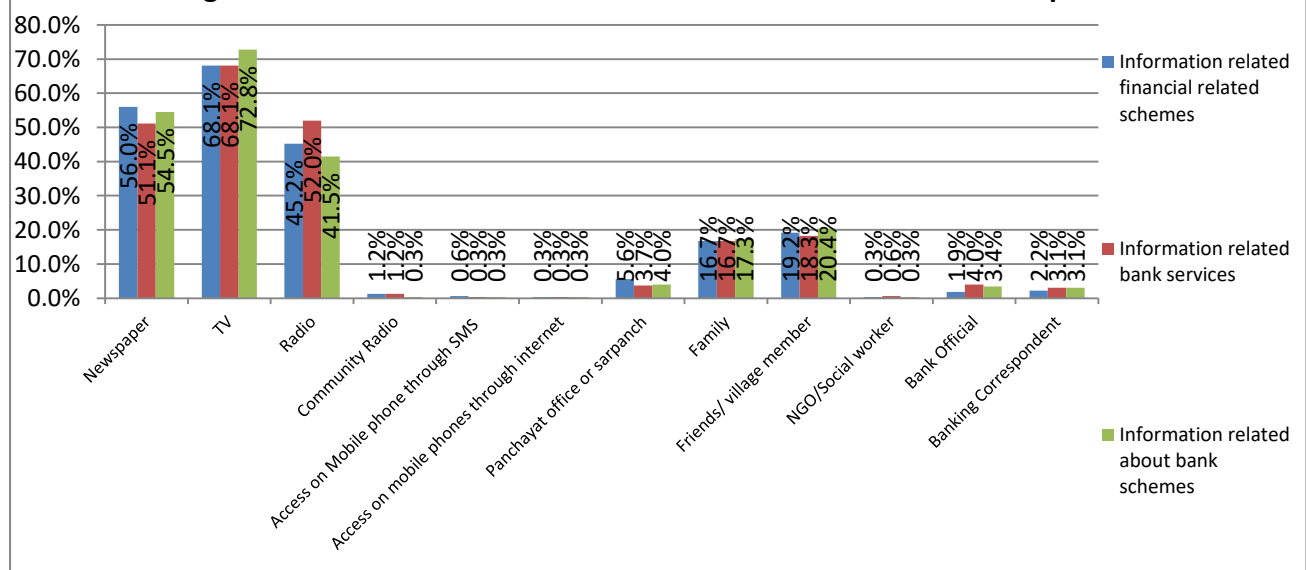
Fig 22: Type of training programs for women



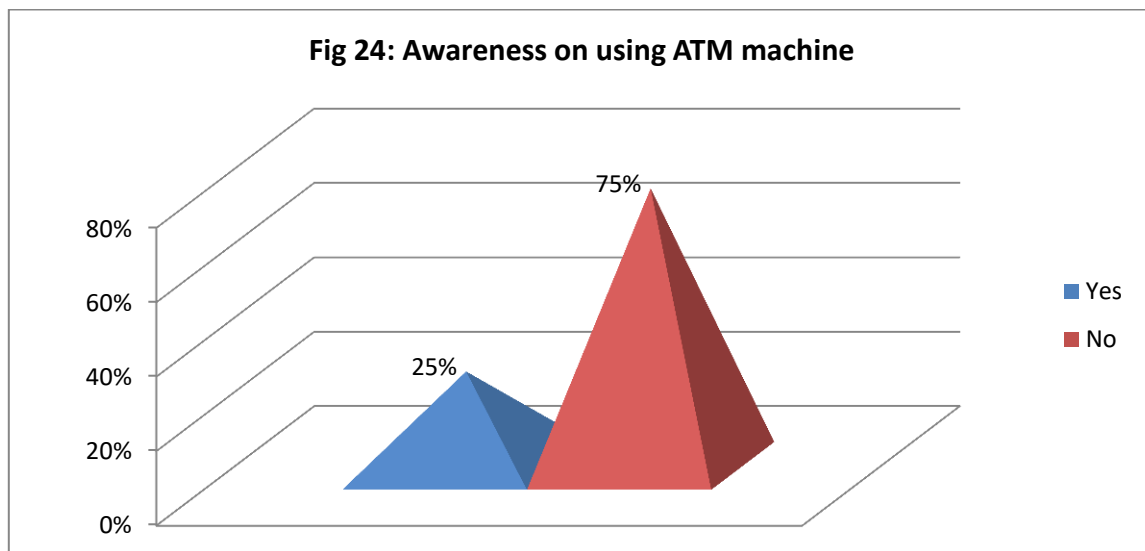
Pillar 3: Financial Inclusion

The respondents from Kancheepuram said that main sources of their financial related information are television, newspapers and radio. Only one respondent stated that they receive financial related information through mobile phones by accessing internet.

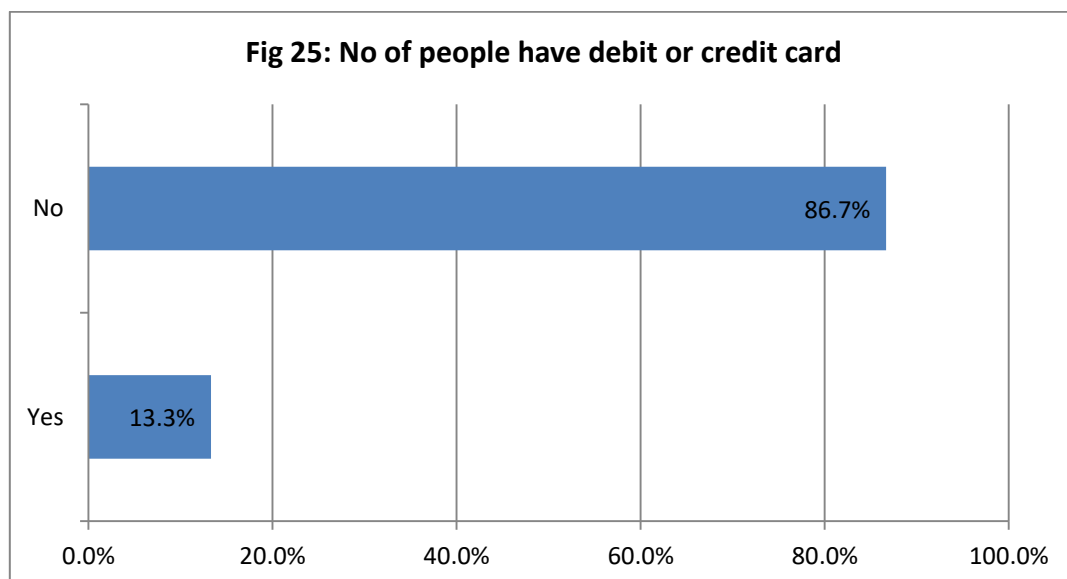
Fig 23: Source of financial inclusion related information - Kancheepuram



75% respondents do not know how to use ATM machine in Kancheepuram. When they were asked about number of family members who can use ATM machine, 34% said that 1-3 members in their family can use the same.



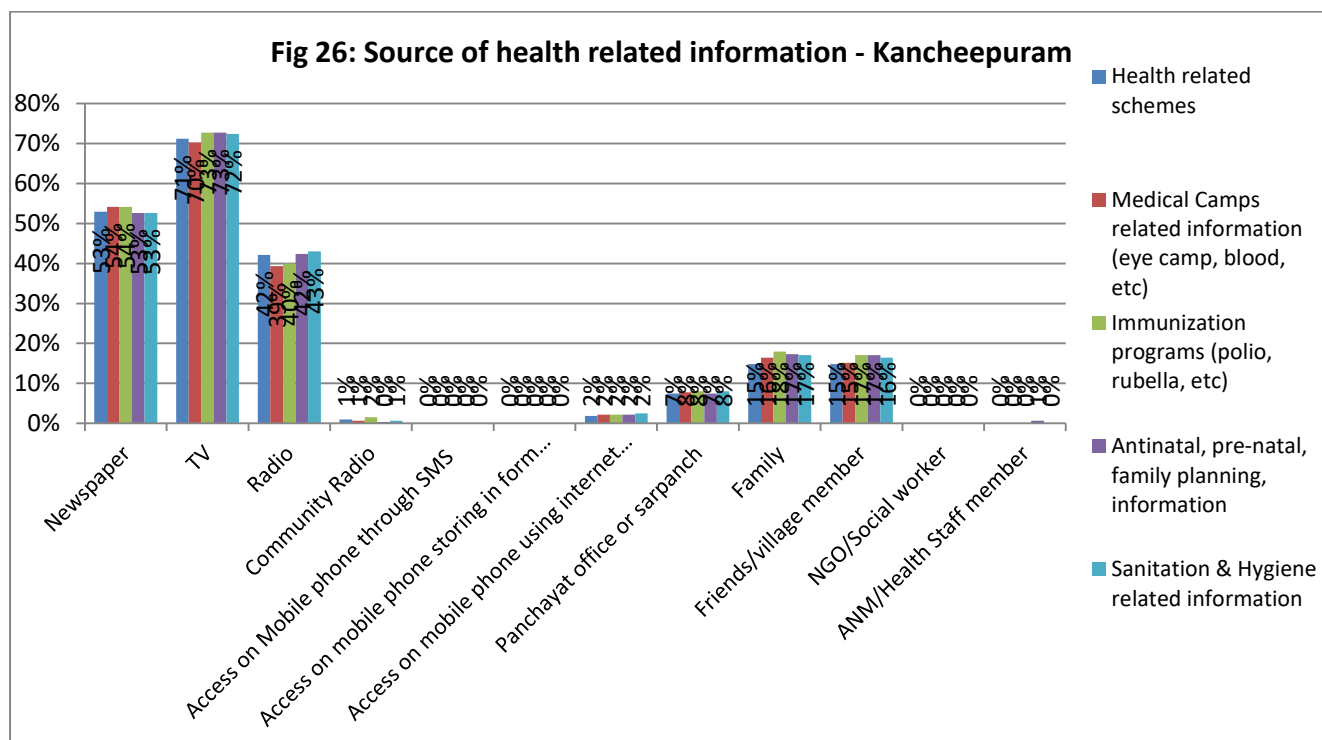
In Kancheepuram 86.7% respondents do not have debit or credit card and none of them use online bill payment system while one person said that he has used inline ticket booking system.



Pillar 4: Health

Fig 26 shows that main sources of health related information in Kancheepuram is television followed by newspapers and radio. Only 1% respondents said that they get

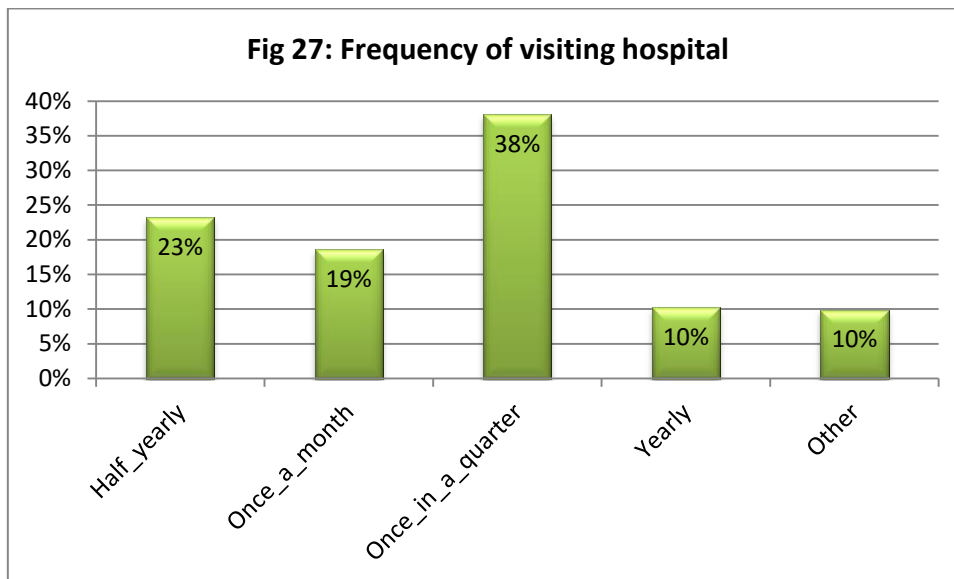
Antenatal, pre-natal, family planning, information through health workers, ANM etc. It is evident from the figure 26 that mobile phones and internet do not play any role in their life for availing health related information in Kancheepuram.



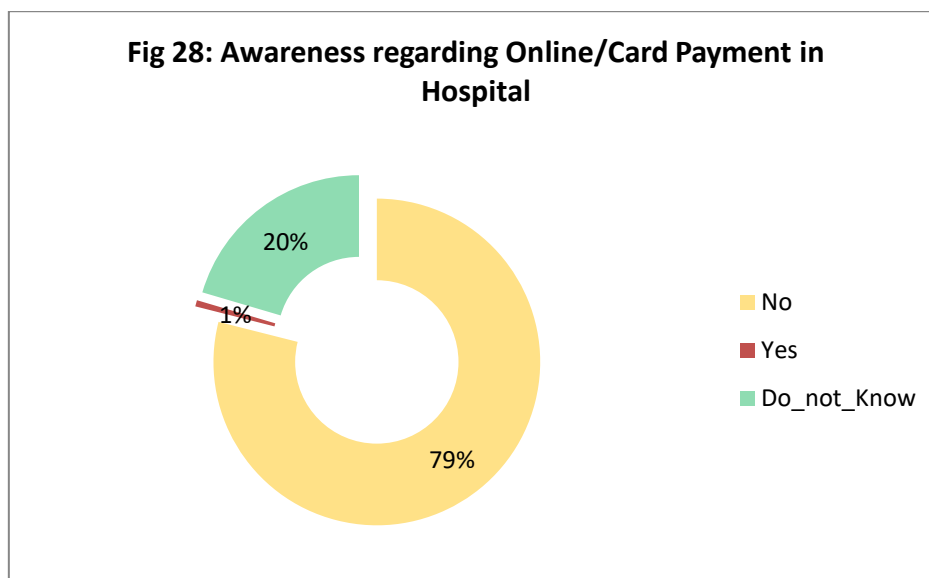
19% people mentioned that they visit hospital once in a month; and 38% said that they visit hospital once in a quarter. When asked about ambulance service, 36% people said that ambulance is available in Kancheepuram and 74% people are not satisfied with health facility available in their village.

Checking about health insurance, only one respondent has health insurance 30% do not know about health insurance. None of the respondents buy health products online. These figures show that awareness about health services is minimal in the region.

While having discussion in group with regard to health services, most of them informed that these days they would prefer to visit Medical College for their treatment and medication. Ambulance service is only available for pregnant mothers not for emergency services such as heart attack, accident and others.



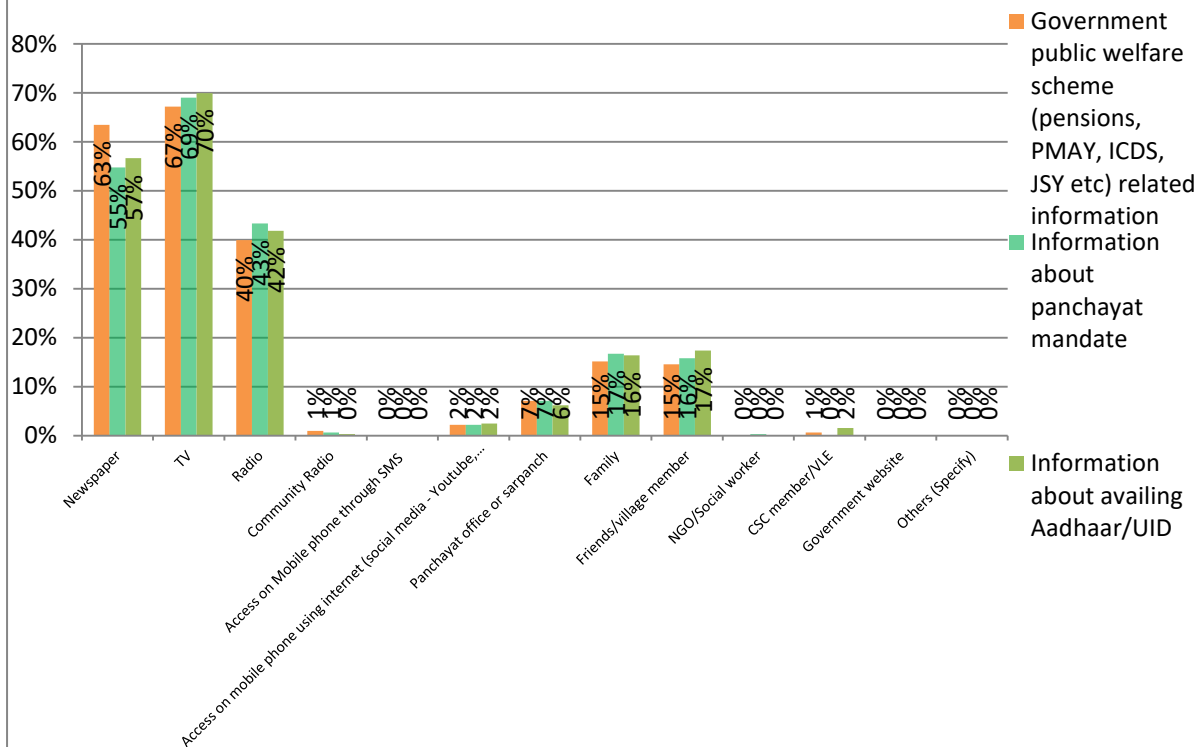
In Kancheepuram, 79% people mentioned that online or card payment facility is not available in hospital. Availability of ICT services in hospital, none of the respondents informed that they could book doctor appointment either through online or phone. Only 1% people said there is online payment facility available in hospital and 20% do not know about this facility.



Pillar 5: e-Governance

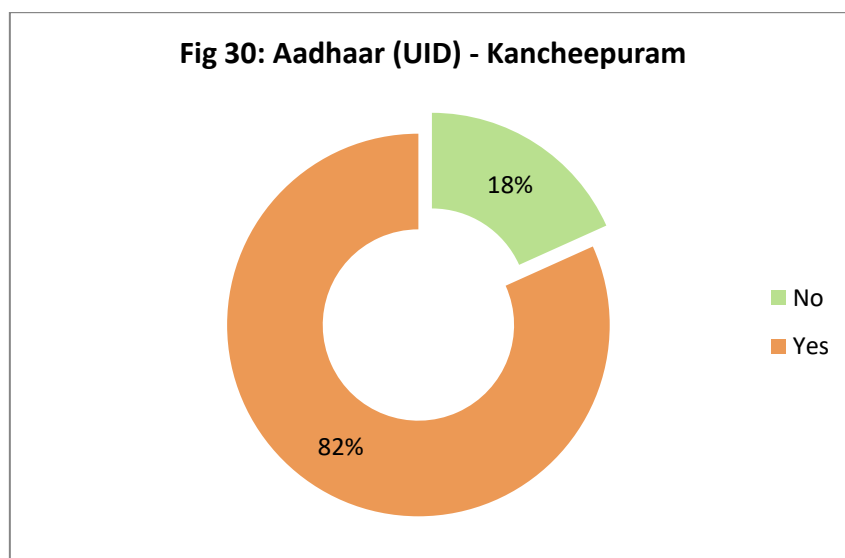
Figure 29 shows that source of schemes related information are television, newspapers and radio in Kancheepuram. Negligible numbers (2%) of respondents use mobile phones and internet as source of information.

Fig 29: Source of Schemes related information



In Kancheepuram, 82% people have Aadhaar (UID) and rest of them do not have one. When they were asked about availing various government schemes, 93% respondents from Kancheepuram are not availing any government schemes and only 2% are aware about RTI. Further, when they were asked about applying certificates online, all of them said that they are not able to apply online for any kind of certificates.

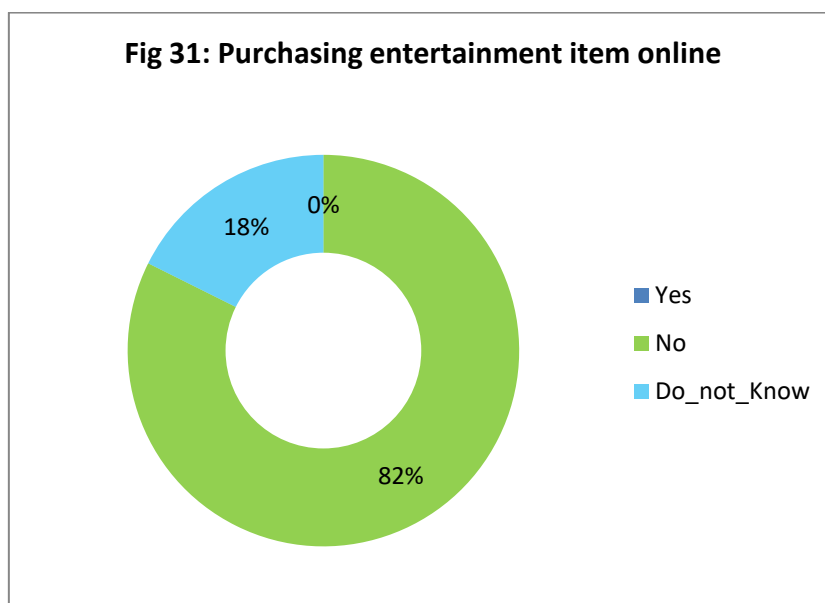
Fig 30: Aadhaar (UID) - Kancheepuram





Pillar 6: Entertainment

When it comes to entertainment, 63% people never go out for any kind of entertainment from their village, while 35% people go out to nearby theatres 1 – 3 times in a month for movies. When they were asked about purchasing any kind of entertainment item such as speakers, headphones, CDs, etc. 82% said that they don't buy it online and 18% did not have any awareness regarding this.



Conclusion

Following the successful conclusion of the baseline survey in Kancheepuram, the Smart Villages Initiative intends to take forward their findings, and leverage the gap of knowledge and information, and technology to pursue the specified goals. Taking all the pillars of the project to villages can channelize the energies of the youth as a powerful tool for the nation. An educated and skilled rural youth will be an asset to the country. And at most the overall development of the country can be possible with the development of the villages only.