International Journal of Advance Research in Community Health Nursing

E-ISSN: 2664-1666
P-ISSN: 2664-1658
IJARCHN 2020; 2(1): 13-16
Received: 05-11-2019
Accepted: 10-12-2019

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Knowledge and attitude of residents regarding re-establishment and cleaning up of Anantha Victoria Marthandavarman Canal: A descriptive study

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Abstract
Introduction: Anantha Victoria Marthandavarman Canal is popularly known as AVM Canal. It was running from Kochi in Kerala to Mondaikadu in Tamil Nadu. Now the AVM channel is polluted completely with waste. People have made their own fate in bringing up the terrible diseases like Chikungunya, Dengue fever. The present study aimed at assessing the knowledge and attitude regarding re-establishment of AVM channel for water navigation among residents of selected villages.
Methods: Descriptive research design was adopted. Data was collected from 50 samples using purposive sampling. The researchers interviewed each sample with a structured questionnaire.
Results: About 50% of them had good knowledge regarding water pollution and its hazards. All the participants (100%) were willing to clean up the polluted channel and 74% were willing to re-establish the channel for boating.
Conclusion: The attitude of residents towards cleaning and re-establishing the channel for water navigation is highly favorable. So it is the responsibility of the government and the NGOs to join hand with public to clean and re-establish the channel for water navigation.

Keywords: AVM channel, pollutants, re-establishment, cleaning, water pollution

Introduction
Anantha Victoria Marthandavarman Canal is popularly known as AVM Canal. It was running from Kochi in Kerala to Mondaikadu in Tamil Nadu. In This Canal got this name from the Highness Maharaja of Travancore Sri Utram Tirunal Marthandavarma and his most respected British Queen Victoria of England. The etymological meaning of the term 'Anantha' simply indicates snake which always used by Padmanabha, the family deity of the Travancore kings [1].

The Travancore government under Sri Utram Tirunal Marthandavarma had various aims and objectives behind the construction of AVM Canal. The main aim of the AVM Canal scheme was to extend the water communication to the extreme south of the country, through that the government had a plan to make close contact with the Malayalam speaking people of northern Travancore and Tamil speaking people of southern Travancore. There was a possibility of cultural integration among these two sections of people. The Travancore Government inaugurated AVM channel construction work in 1860 with the help of the British Resident and Engineers [1].

Unfortunately in 1860 itself Utram Tirunal Marthandavarma died and so in his place Ayilyam Tirunal ascended the throne of Travancore. He continued the construction works of his predecessor. So the construction of AVM Canal also continued systematically. In 1863 he appointed Barton as the chief engineer of the PWD in Travancore. In 1867 the construction work of the AVM Canal, in the beach between Poovar and Manavalakurichi, south east of Colachel, was partly finished. Its length was 21km and width is 20 meters. Things like rice, wheat etc were transported to various parts in the Travancore kingdom through the A.V.M canal. After the end of Travancore kingdom this canal transport was wind up [1].

At present the AVM Canal is encroached in some parts especially the coastal areas. The canal has lost its bright structure due to the construction of houses and buildings on the canal. In some places the local Panchayats were constructed a small bridges crossed by the canal [2]. The originality of the canal has gone and the nature is chaos due to the above reasons

Need for the study

Water pollution is the contamination of water bodies, usually as a result of human activities. Water pollution is a major global problem. It has been suggested that water pollution is the leading worldwide cause of death and diseases. Water pollution accounted for the deaths of 1.8 million people in 2015. India and China are two countries with high levels of water pollution. An estimated 580 people in India die of water pollution related illness including waterborne diseases every day [2].

The AVM Canal is polluted completely with waste. It is full of aquatic macrophytes that harbor mosquito larvae. Defecation on the bank of the channel and domestic waste pollute the Canal. In Mondaikadu, coconut husk retting operation is carried near the Canal. In Manavalakurichi and South Kollencode, the husk netting operation takes place in the Canal itself. The hydrogen sulphide released from the netting ponds pollute the channel and the water become turbid. At present the waste collected from the town are dumped in low lying area and along the coastal side of the town near the AVM Canal. People have made their own fate in bringing up the terrible diseases like Chikungunya, Dengue fever by polluting the canal under various circumstances [2].

S. Betsy Bai & Y. Jinisha studied the water quality of AVM canal in five different sites namely Vallavilai, Thatheyapuram, Eraviputhenthurai, Poothurai and Erayumanthurai. They reported that dissolved oxygen showed great fluctuations. The maximum dissolved oxygen content was 9.04 mg / litre and was recorded during May. The minimum dissolved oxygen content of 5 mg / litre was recorded during March. Total Dissolved Solids in water originates from natural sources, sewage, urban run – off, industrial waste water and chemicals used in the water treatment process. In the present study, maximum TDS was recorded in site V with a value of 3880 mg / litre and a minimum of 1430 mg / litre in site I during May [3].

Study done by Mary Helen, H, Premjith, S & Jaya, D.S showed that. The maximum bacterial count was recorded during pre monsoon season and minimum during monsoon season. The important bacterial genera encountered were *Escherichia coli*, *Salmonella* and *Shigella*. Among the identified bacterial genera, *Escherichia coli* were found to be the dominant one followed by *Salmonella* and *Shigella* [4].

The researchers are studying in the school situated near the bank of AVM Canal. Every day when they come to school, they used see the people disposing the waste in to AVM Canal and personally they have noticed bad smell and mosquito breeding around the area. Many of their schoolmates residing in the nearby villages complain of diseases caused by water pollution. So the researchers were interested to study this topic.

Aim of the study

The study aimed to assess the knowledge regarding water pollution and its hazards and attitude regarding re-establishment of AVM Canal for water navigation among residents of selected villages residing near the bank of AVM Canal in Kanyakumari district.

Objectives of the study

1. To assess the level of knowledge regarding AVM Canal, water pollution and its hazards among residents of selected villages residing near the bank of AVM Canal.
2. To assess the attitude regarding re-establishment of AVM Canal for water navigation among residents of selected villages residing near the bank of AVM Canal.

Methodology

Research Approach: A quantitative research approach was adopted

Research Design: A descriptive research design was adopted.

Setting of the study: The study was conducted in Puthoor and Kottilpadu near Mondaikadu. This are the two villages situated near the bank of AVM Canal.

Population: The population consisted of both males and females residing in selected villages near the bank of AVM Canal in Kanyakumari district.

Sample of the study: Sample represented both the males and females residing at selected villages who were above the age of 18 years.

Sample size: The sample size was 50. Both males and females who fulfilled inclusion criteria available during data collection were selected as sample. Out of 50 samples, 25 were selected from Kotilpadu and 25 from Puthoor.

Sampling Method: Purposive sampling was used to select the samples.

Criteria for sample selection

Inclusion criteria: The resident who was

- Above 18 years
- Residing in Puthoor or Kotilpadu
- Willing to participate in the study
- Know to speak in Tamil

Description of the tool

Part I: Knowledge questionnaire

The questionnaire consisted of 20 items regarding the history of AVM Canal, how it was polluted, problems due to water pollution and prevention of water pollution. Each question was given four choices. The correct answer was given 1 mark and wrong answer was given 0 marks. The maximum attainable mark was 20.

Part II: Attitude questionnaire

It consisted of 10 items related to their views about cleaning and re-establishment of AVM Canal. The participants were asked to state as agree or disagree. The scoring was given as follows. 1- Agree and 0- disagree. The maximum score attained was 10 and the minimum score attained was 0. Reverse scoring was given for negative statement.

Development and validity of the tool

The questionnaire was developed by the researchers after thorough review of literature related to AVM Canal and validated with the help of the experts.

Data collection procedure: After getting permission from the Head of the Parish, the researchers went to the villages on 24th September and 1st October 2019. On 24th September

2019, data was collected from Kotilpadu and 2nd October 2019 from Puthoor. Samples were selected according to inclusion criteria. After explaining the purpose of the study, the researchers got oral consent from the participants. The questionnaire was completed by the researchers through interview technique. The researcher interviewed each sample for 15-20 minutes. Each day the researchers interviewed 25 samples (12-13 samples by each researchers).

Ethical considerations

- A formal permission was obtained from the head of the Parish where the study was conducted.
- Oral consent from the participant was obtained before the data collection.

Results.

Demographic variables of samples

About 40% of the samples were between 30 and 45 years, 82% were females, 88% were married, 66% were living in nuclear family, 58% of them had secondary education and 74% of them were housewives.

Knowledge and attitude regarding pollution of AVM canal and re-establishment

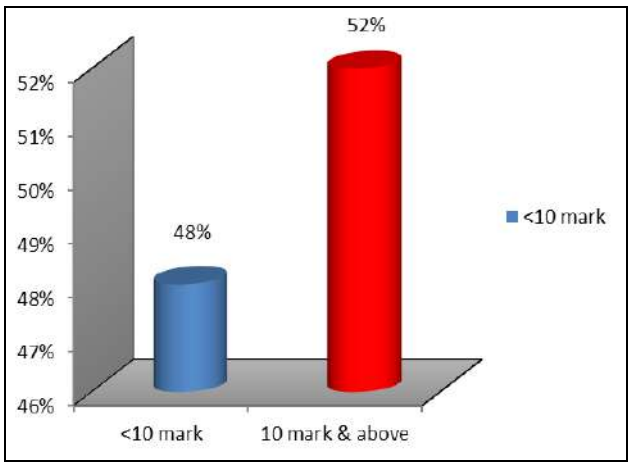

Fig 1: Distribution of samples according to their level of knowledge regarding AVM canal and water pollution (N=50).

Figure 1 reveals that 50% of them had good knowledge and 32% of them had poor knowledge regarding water pollution and its hazards.

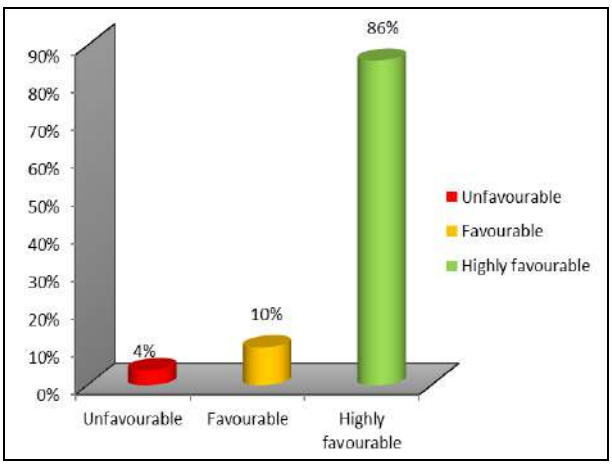

Fig 2: Distribution of samples according to their level of attitude regarding re-establishing AVM canal for water navigation (N=50)

Figure 2 shows that 86% of them had highly favorable attitude regarding cleaning up and re-establishment of AVM canal and only 2% had unfavorable attitude.

Willingness of samples regarding cleaning and re-establishing AVM canal

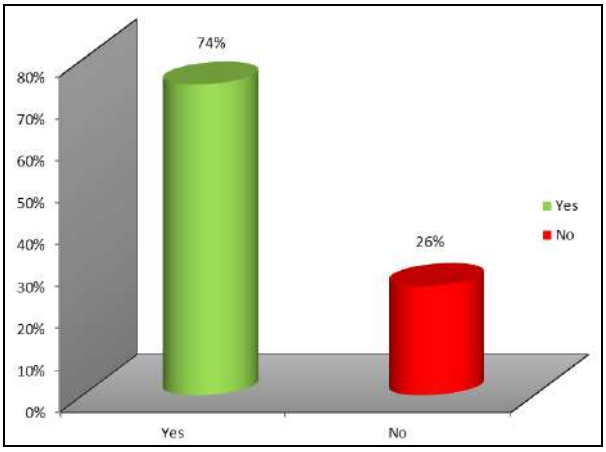

Fig 3: Distribution of samples according to their willingness to re-establish boating service in AVM canal (N=50).

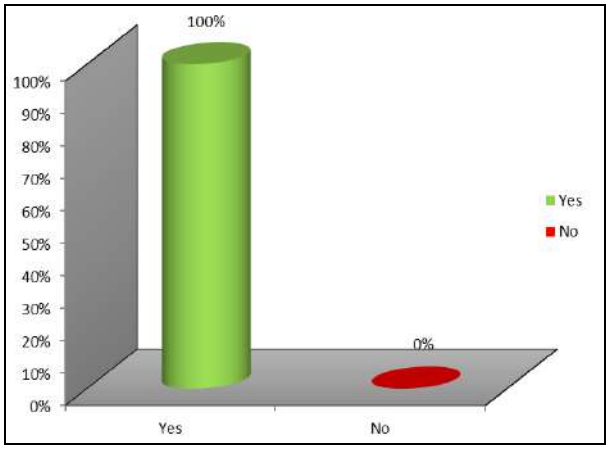

Fig 4: Distribution of samples according to their willingness to clean up the polluted AVM canal (N=50).

Figure 3, 4 shows that 100% of the samples were willing to clean up the polluted canal and 74% were willing to re-establish the canal for boating. About 26% were not willing because their houses built on the bank of the canal will be demolished while re-establishing the canal.

Discussion

The findings of the present study have been discussed under different headings with relevance to the objectives of the study.

Objective I: To assess the level of knowledge regarding water pollution and its hazards among residents of selected villages residing near the bank of AVM canal.

The researchers in their study reported that about 50% of them had good knowledge and 32% of them had poor knowledge regarding water pollution and its hazards. Even though, half of them had good knowledge about water pollution, the practice of disposing the waste in AVM canal is not changed.

Objective II: To assess the attitude regarding re-establishment of AVM canal for water navigation among

residents of selected villages residing near the bank of AVM canal.

The present study revealed that around 86% of them had highly favorable attitude regarding cleaning up and re-establishment of AVM canal and only 2% had unfavorable attitude. All the participants (100%) were willing to clean up the polluted canal and 74% were willing to re-establish the canal for boating. About 26% were not willing because their houses were built on the bank of the canal. They expressed that re-establishing the channel leads to demolishment of their houses.

Conclusion

The study results concluded that the AVM canal is polluted with various domestic waste made up of plastics, glasses, the rmocol etc. The sewage from houses including public drainage drains in the AVM canal. Even though the residents have knowledge about water pollution, the historical background of the canal is not known to many. That might be the reason why they are not keeping the canal clean. The municipality also paved a way to pollute the canal by establishing public drainage system which drains in to the AVM canal. Their attitude towards cleaning and re-establishing the canal for water navigation is highly favorable. So it is the responsibility of the government and the NGOs to join hand with public to clean and re-establish the canal for water navigation so that the historical award of the district will be sustained.

Solutions recommended by the researchers to prevent water pollution in AVM channel

- Public drainage system constructed by the panchayat and municipality drains in to the AVM canal in both villages. The local panchayat and municipality should take steps to modify the drainage system.
- The Panchayat and Municipality should take steps to keep permanent waste bins separate for each items in the corners of both villages, so that people can discard the waste in that waste bin. The same way they should also arrange to collect all the waste from the waste bin every day.
- People in the community are willing to clean up the canal and render their co-operation during the process of cleaning. If the government initiates the work along with the help of NGOs, the public will co-operate with them.

Future Scope of work done

- Similar study can be conducted with large sample in different villages near the bank of AVM canal so that views of many people can be obtained.

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