

DEPARTMENT OF ZOOLOGY

STUDENT STUDY PROJECTS

2018-2019



TITLE : PREVENTION OF HIV-AIDS: A REVIEW

SUBMITTED BY

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HANAMKONDA, WARANGAL.**

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Aims and Objectives :

The aim of the HIV/AIDS Awareness Programme is to empower and increase the awareness to participants of HIV/AIDS, its impact, management and availability of support systems. This is to encourage early testing and lifestyle changes that will thereby reduce and prevent further infection.

To foster early detection of HIV infection among persons at ongoing risk for HIV or among persons with a recent HIV exposure;

To enhance earlier referral to prevention, care, treatment and support for persons newly identified as being HIV positive.

The main objectives are:

- to explain why it is not advisable to recommend re-testing for HIV for all populations and in all settings,
- to clarify the specific populations and settings in which persons who have previously tested HIV negative can benefit from re-testing after a given time period,
- to provide the timeframe for re-testing when it is indicated by population and setting, and
- to illustrate these scenarios with messages that can be used by providers to educate individuals at the time of the HIV test.

Objectives

- **Prevention of HIV transmission**
- **Safe Blood Transfusion**
- **Reduction of Sexually Transmitted Diseases transmission**
- **Establishment of surveillance**
- **Reduce Stigma attached with disease**
- **Training of Health Staff**
- **Research and Behavioral studies**
- **Development of Programme Management.**
- **Create an enabling environment**
- **Build the right capacity**
- **Strengthen the institutional framework**

Material & Methods:

Acquired immunodeficiency syndrome (AIDS) is a chronic, potentially life-threatening condition caused by the human immunodeficiency virus (HIV). By damaging your immune system, HIV interferes with your body's ability to fight infection and disease.

HIV is a sexually transmitted infection (STI). It can also be spread by contact with infected blood and from illicit injection drug use or sharing needles. It can also be spread from mother to child during pregnancy, childbirth or breastfeeding. Without medication, it may take years before HIV weakens your immune system to the point that you have AIDS.

There's no cure for HIV/AIDS, but medications can control the infection and prevent progression of the disease. Antiviral treatments for HIV have reduced AIDS deaths around the world, and international organizations are working to increase the availability of prevention measures and treatment in resource-poor countries.

Discussion :

The symptoms of HIV and AIDS vary, depending on the phase of infection.

Primary infection (Acute HIV)

Some people infected by HIV develop a flu-like illness within 2 to 4 weeks after the virus enters the body. This illness, known as primary (acute) HIV infection, may last for a few weeks.

Possible signs and symptoms include:

- Fever
- Headache
- Muscle aches and joint pain
- Rash
- Sore throat and painful mouth sores
- Swollen lymph glands, mainly on the neck
- Diarrhea
- Weight loss

- Cough
- Night sweats

These symptoms can be so mild that you might not even notice them. However, the amount of virus in your bloodstream (viral load) is quite high at this time. As a result, the infection spreads more easily during primary infection than during the next stage.

Clinical latent infection (Chronic HIV)

In this stage of infection, HIV is still present in the body and in white blood cells. However, many people may not have any symptoms or infections during this time.

This stage can last for many years if you're not receiving antiretroviral therapy (ART). Some people develop more severe disease much sooner.

Symptomatic HIV infection

As the virus continues to multiply and destroy your immune cells — the cells in your body that help fight off germs — you may develop mild infections or chronic signs and symptoms such as:

- Fever
- Fatigue
- Swollen lymph nodes — often one of the first signs of HIV infection
- Diarrhea
- Weight loss
- Oral yeast infection (thrush)
- Shingles (herpes zoster)
- Pneumonia

Progression to AIDS

Access to better antiviral treatments has dramatically decreased deaths from AIDS worldwide, even in resource-poor countries. Thanks to these life-saving treatments, most people with HIV in the U.S. today don't develop AIDS. Untreated, HIV typically turns into AIDS in about 8 to 10 years.

When AIDS occurs, your immune system has been severely damaged. You'll be more likely to develop diseases that wouldn't usually cause illness in a person with a healthy immune system. These are called opportunistic infections or opportunistic cancers.

The signs and symptoms of some of these infections may include:

- Sweats
- Chills
- Recurring fever
- Chronic diarrhea
- Swollen lymph glands
- Persistent white spots or unusual lesions on your tongue or in your mouth
- Persistent, unexplained fatigue
- Weakness
- Weight loss
- Skin rashes or bumps

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Aquatic insects and their importance in assessing ecosystem health

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Aim & Objective:

Insects are the most successful group in the animal kingdom in terms of both richness and abundance and thus are the largest and most diverse group of invertebrates. They outnumber all animal species and compete with plant and microbial species richness. Among insects, aquatic insects are specialized group which exhibit rich adaptability and hence one more diverse. Micro and macro habitat distribution of aquatic insect population is due to their varied life style such as benthic (associated with the bottom substrates), clinging (clinging to the substrate with grasping claws or disks), sprawling (crawl along the protected surfaces of the substrates), climbing (reside on aquatic plant stems and other shoreline substrates), burrowing (burrow into the soft bottom), floating and swimming (which are not associated with a substrate for attachment). With over 100,000 species, the aquatic insects grouped into 12 orders have been reported to harbour freshwater ecosystem and are prominent among other aquatic fauna. Of these, orders such as Diptera, and Trichoptera are more diverse and constitutes 43%, 18% and 15%, respectively.

Material & Methods:

These insects devote one or more stages of their life cycle in water and involve in important of ecological function in the freshwaters ecosystem like processing organic matter, food for predators, transporting energy flow between different trophic level. With various functional feeding groups viz., shredders, scrapers, collectors-gathers, collectors-filter feeders and predators, aquatic insects are links in nutrient cycling inter connected and their biological interactions often have significant effects on community structure in the freshwater ecosystem. In addition to this ecosystem function, they are very good indicators of the anthropogenic impact of aquatic environment and hence, they are used in bio-monitoring methods in aquatic system. Further the economic importance of biodiversity and role of aquatic insects facilitate sustainable culture fisheries management and practice India is bestowed with diverse freshwater ecosystem like streams, rivers, ponds, wetlands, lakes and reservoirs which serve as shelters for several aquatic insects as well as other floral and faunal communities. However, studies on freshwater organisms especially insects have received only less attention in India when compared to rest of the developed countries. A comprehensive review of studies on aquatic insects are carried out in Tamil Nadu, Kerala, Karnataka, Andhra Pradesh revealed their relationship with physico-chemical parameters of their habitats. Further these studies extrapolate the utility of aquatic insects in monitoring changes in water quality and aquatic life in freshwater ecosystems and to identify the sources of pollution are currently employed in assessing the biomagnification due to pesticides and heavy metals Aquatic insect are the diverse group of insect, which used for various toxicological studies. This insect indicate the pollution status of water bodies. Hence for any pesticide registration the test on aquatic insect needed. OECD has given various guidelines to conduct the studies on pesticides in *Daphnia* sp., *Chironomus* immobilisation test. So insects play a important role for not only diversity but as a indicator of any pollutant in any water bodies.

Discussion:

India is bestowed with diverse freshwater ecosystem like streams, rivers, ponds, wetlands, lakes and reservoirs which serve as shelters for several aquatic insects as well as other floral and faunal communities. However, studies on freshwater organisms especially insects have received only less attention in India when compared to rest of the developed countries. A comprehensive

review of studies on aquatic insects are carried out in Tamil Nadu, Kerala, Karnataka, Andhra Pradesh revealed their relationship with physico-chemical parameters of their habitats. Further these studies extrapolate the utility of aquatic insects in monitoring changes in water quality and aquatic life in freshwater ecosystems and to identify the sources of pollution are currently employed in assessing the biomagnification due to pesticides and heavy metals. Aquatic insects are the diverse group of insects, which are used for various toxicological studies. These insects indicate the pollution status of water bodies. Hence for any pesticide registration the test on aquatic insects is needed. OECD has given various guidelines to conduct the studies on pesticides in *Daphnia* sp., Chironomus immobilisation test. So insects play an important role for not only diversity but as an indicator of any pollutant in any water bodies. In water oxygen level decreased, increased chironomid larvae, temperature increased decline of stonefly, pesticides increased affect the diversity and nutrient content increased population of some insects increased and found imbalance of diversity. The pH, electric conductivity and Dissolved oxygen were directly proportional to insect population increased. Human contaminations were indicated by aquatic insects. The bacterial growth in insects indicates that elevated concentration of the phosphate and nitrate in the wetland ecosystem. The abundance of *Gerris spinolae* population indicates that the aquatic ecosystem was unpolluted. The bioindicator is better indicator than chemical indicator, because we cannot measure all the contaminated chemicals in the ecosystem. The aquatic insect population directly proportional to seasonal variations. The aquatic ecosystems being a rich source of water availability are mostly targeted by people for fulfilling their needs. Further, in the ecosystem is threatened due to forest fragmentation, expansion of agriculture, construction of dams and mining greatly affects the vegetation area and the faunal diversity associated with it. In recent days, uncontrolled and unregulated human activities have extensively transformed natural ecosystems into various other landforms, especially commercial plantations, greatly depleting biomass and diversity levels in areas remaining under forest cover. Because of their distribution in varied microhabitats, high abundance, high fecundity, low generation time and rapid colonization, aquatic insects are best tools in analysing the structure and function of fresh water ecosystem. Hence, it is inevitable that more researches needed in the direction of assessing the health of fresh water ecosystems using aquatic insects prior to planning conservation and management strategies.

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