
THE RELATIONSHIP BETWEEN HEALTH EDUCATION AND CONTROL OF
COMMUNICABLE DISEASES AMONG PRIMARY SCHOOL PUPILS IN ETINAN LOCAL
GOVERNMENT AREA OF AKWA IBOM STATE.

By

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Abstract

The aim of this work was to examine the relationship between health, education and control of communicable diseases among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State. Four objectives, research questions and hypotheses were formulated for the study Social Cognitive Theory and the Health Belief Model was the theoretical frameworks that guided the study. Descriptive survey research design is adopted for this study. The area of the study was Nsit Ibom Local Government Area, Akwa Ibom State. The population of the study was one- thousand two hundred and eleven (1,211) primary school pupils. The study used simple random sampling technique in selecting respondents for the study. A sample size of 120 primary 4 pupils was randomly selected from 5 public schools. The research instrument used for the study was a researcher designed instrument titled "Health Education and Control of Communicable Diseases Instrument" (HFCDI). In order to determine the reliability of the instrument, a test retest method was adopted. A reliability co-efficient of 0.84 was established for the instrument using the Pearson Product Moment Correlation. Pearson Product Moment Correlation was the statistical tool used in data analyses as well as answering research questions, findings from the study revealed a significant relationship between health education and the control of communicable diseases such as measles, chicken pox, mumps and conjunctivitis among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State.

Keywords: Health Education, Communicable Diseases, Primary School Pupils, Etinan Local Government Area And Akwa Ibom State.

Introduction

Background of the Study

Health education is a profession of educating people about health. Areas within this profession encompass environmental health, physical health, social health, emotional health, intellectual health, and spiritual health, as well as sexual and reproductive health education (Boye, 2016). In Nigeria, health education which is a compulsory part of the school curriculum from the nursery to the secondary level of education plays a vital role in the care and prevention of diseases amongst school children. The knowledge offered through health education fosters a state of complete physical, social, mental and emotional wellbeing in children and eradicate ignorance of disease conditions (Boye, 2016).

A contagious disease is an infectious disease that is readily spread by transmission of a pathogen through contact (direct or indirect) with an infected person (Kirkby, 2016). Primary and secondary school children form a special group that features high personnel density and close interpersonal contact, easily causing outbreaks of infectious diseases in the absence of timely control. As a gathering place for young people, schools display characteristics of a largely susceptible population, frequent contact, and gathering age and are a place where outbreaks of infectious diseases, especially respiratory diseases, may occur. Coupled with rapid socioeconomic development and frequent population flows, infectious diseases more possibly occur and spread in schools (Kirkby, 2016). Epidemics or outbreaks of infectious diseases in schools not only affect teaching order, resulting in an adverse, social effect, but also negatively affect physical and mental health of young people. Health literacy is often indicated to accommodate an individual approach by substituting the three domains of health “healthcare, disease prevention, and health promotion with “being ill, being at risk, and staying healthy” (Pianma, 2017). Health literacy bears significance in improving prevention and control of infectious diseases, whereas health knowledge and behavior are important components of health literacy.

Health education is often indicated to accommodate an individual approach by substituting the three domains of health: healthcare, disease prevention and health promotion with being ill, being at risk and staying healthy (Boye, 2016). Health education bears significance in improving prevention and control of infectious diseases, whereas health knowledge and behavior are important components of health literacy. Given the current high incidence of infectious diseases among school children, improving health education of children on communicable diseases serves as an important channel in controlling epidemics and outbreaks of infectious diseases in schools (Kirkby, 2016). Health education can improve the knowledge of children on communicable diseases and promote the development of appropriate behaviors toward communicable disease prevention and control. Health education effectively slows spread of infectious diseases, and conducting school health education programs not only provides students with proper knowledge and behavior toward infectious diseases but also benefits the comprehensive development of schools.

Four constructs of communicable diseases were used as variables for this study; measles, chicken pox, conjunctivitis (Apollo) and mumps.

Measles is a highly contagious infectious disease caused by measles virus. Symptoms usually develop 10-12 days after exposure to an infected person and last 7-10 days. Initial symptoms typically include fever, often greater than 40 °C (104 T), cough, runny nose, and inflamed eyes. Small white spots known as Koplik’s spots may form inside the mouth two or three days after the start of symptoms. A red, flat rash

which usually starts on the face and then spreads to the rest of the body typically begins three to five days after the start of symptoms. Common complications include diarrhea (in 8% of cases), middle ear infection (7%) and pneumonia (6%). These occur in part due to measles-induced immunosuppression. Less commonly seizures, blindness, or inflammation of the brain may occur. Other names include morbilli, rubeola, red measles, and English measles. Both rubella, also known as German measles, and roseola are different diseases caused by unrelated viruses. Measles is an airborne disease which spreads easily from one person to the next through the coughs and sneezes of infected people. It may also be spread through direct contact with mouth or nasal secretions. It is extremely contagious: nine out of ten people who are not immune and share living space with an infected person will be infected (Soje, 2016).

Mumps is a viral disease caused by the mumps virus. Initial symptoms are non-specific and include fever, headache, malaise, muscle pain, and loss of appetite. These symptoms are usually followed by painful swelling of the parotid glands, called parotitis, which is the most common symptom of infection. Symptoms typically occur 16 to 18 days after exposure to the virus and resolve within two weeks. About one third of infections are asymptomatic. Complications include deafness and a 'wide range of inflammatory conditions, of which inflammation of the testes, breasts, ovaries, pancreas, meninges, and brain are the most common. Testicular inflammation may result in reduced fertility and, rarely, sterility. Humans are the only natural host of the mumps virus, an RNA virus in the family Paramyxoviridae. The virus is primarily transmitted by respiratory secretions such as droplets and saliva, as well as via direct contact with an infected person. Mumps is highly contagious and spreads easily in densely populated settings. Transmission can occur from one week before the onset of symptoms to eight days after. During infection, the virus first infects the upper respiratory tract (Markery, 2016).

Chickenpox, also known as varicella, is a highly contagious disease 'caused by initial infection with varicella zoster virus (VZV). The disease results in a characteristic skin rash that forms small itchy blisters, which eventually scab over. It usually starts on the chest, back, and face. It then spreads to the rest of the body: the rash and other symptoms, such as fever, tiredness, and headaches, usually last five to seven days. Complications may occasionally include pneumonia, inflammation of the brain, and bacterial skin infections.

The disease is usually more severe in adults than in children. Chickenpox is an airborne disease which spreads easily from one person to the next through the coughs and sneezes of an infected person. The incubation period is 10-21 days, after which the characteristic rash appears. It may be spread from one to two days before the rash appears until all lesions have crusted over. It may also spread through contact with the blisters. Those with shingles may spread chickenpox to those, who are not immune through contact with the blisters (Adeyeye. 2015).

Conjunctivitis, also known as pink eye, is inflammation of the outermost layer of the white part of the eye and the inner surface of the eyelid, it makes the eye appear pink or reddish. Pain, burning, scratchiness, or itchiness may occur. The affected eye may have increased tears or be "stuck shut" in the morning. Swelling of the white part of the eye may also occur. Itching is more common in cases due to allergies. Conjunctivitis can affect one or both eyes. The most common infectious causes are viral followed by bacterial. The viral infection may occur along with other symptoms of a common cold. Both viral and bacterial cases are easily spread between people. Allergies to pollen or animal hair are also a common cause. Diagnosis is often based on signs and symptoms.

Prevention is partly by hand-washing and treatment depends on the underlying cause, in the majority of viral eases, mere is no specific treatment (Adeyeye, 2015). Therefore, health education must be strengthened to improve health literacy and promote awareness of communicable diseases among school children.

Health Belief Model

The Health Belief Model suggests that people's beliefs about health, problems, perceived benefits .of action and barriers to action and sell-efficacy explain engagement (or lack of engagement) in health-promoting behavior. A stimulus, or cue to action, must also be present in order to trigger the health-promoting behavior, it is a social psychological health behavior change model developed to explain and predict health-related behaviors, particularly in regard to the uptake of health services. The IIBM was developed in the 1950s by social psychologists at the U.S. Public Health Service and remains one of the best known and most widely used theories in health behavior research.

The Health Belief Model is a theoretical model that can be used to guide health promotion and disease prevention 'programs. it is used to explain and predict individual changes in health behaviors. It is one of the most widely used models for understanding health behaviors. Key elements of the Health Belief Model locus on individual beliefs about health conditions, which predict individual health-related behaviors. The model defines the key factors that influence health behaviors as an individual's perceived threat to sickness or disease (perceived susceptibility), belief of consequence (perceived severity, potential positive benefits of action (perceived benefits), perceived barriers to action, exposure to factors that prompt action (cues to action), and confidence in ability to succeed (sell-efficacy).

This theory is relevant to the study in that children at the primary school level are bound to uptake the beliefs of their parents concerning all things. This in turn affects positively or negatively, their reception of health education and practice of good health-promoting behaviours. Teachers and school administrators must then initiate a stimulus, in the form of method of teaching (play way) in order to trigger tire good health-promoting behavior.

Health Education and Control of Measles

Measles is a highly contagious, yet vaccine preventable, viral infection, with a case y rate of up to 10%. Globally, an estimated 10 million cases and 164.000 deaths from measles occurred in 2008. Measles vaccination is a cost-effective intervention for averting measles infection. Vaccination for measles has been 'part of the World Health Organization's (WHO) recommended immunization series since the inception of Expanded Programme on Immunization (b.P1) in 1974. Routine measles vaccination coverage was selected as the third indicator of progress towards the Millennium Development Goal (MDG 4), of reducing under-live mortality rates by two-thirds by 2015, compared with1990 baseline data.

According to the World Health Organization (2023), by 2008, measles vaccination coverage was 83% globally among children aged 12-23 months old. Nearly 700 million children aged between 9 months to 14 years living in high-risk countries, were vaccinated against the disease between 2000 to 2008, and globally measles deaths declined by 78% during this period, indicating that the global measles vaccination campaign successfully averted over 3.6 million deaths. The lowest rates wire in the South-East Asian (75%) and African (73%) regions. In low-income countries, 76% of children aged 12-23 months had received measles vaccination.

According to Kirkby (2020), the major factors influencing measles and other childhood vaccinations operate at five different levels

- i. Intra-personal - Individual child's characteristics
- ii. Inter-personal - parental and household factors
- iii. Community - community characteristics and service delivery factors
- iv. Institutional: international coordination of vaccination efforts
- v. Public policy - quality, coverage and enforcement of policies.

According to Markery (2021), variables such as maternal health education and occupation and household's economic status, have consistently been shown to influence measles vaccination at an interpersonal level in developing countries. However, much of this research has focused on the role of maternal education status, despite the patriarchal nature of most nations with low measles vaccination uptake. The few studies on the impact of paternal education on vaccination uptake were largely based on small samples in limited settings. For example, a study based, on a 2006 survey of slum children in Bangladesh showed that paternal occupation significantly influenced vaccination uptake, with children with fathers in a business or service occupation being 1.059 times and 1.107 times more likely to vaccinate their children, relative to children whose fathers were labourers. A recent study from Pakistan found that while maternal education status was influential in improving child nutritional outcomes, father's education was a more important factor in one-off type health decisions such as receiving vaccination, in comparison to day-to-day decisions related to nutrition.

Pianma (2021) argued that the importance of mothers' education for child survival brought into focus by Caldwell's seminal paper on Nigeria. This paper argued that health education of women played an important role in determining child survival even after control for a number of other factors, including such socioeconomic characteristics of husband, as his educational level and occupation. During 1980s, the realistic knowledge concerning the associations between maternal education and child survival at the micro-level expanded considerably as a result of the World fertility Survey (WFS) program and from a United Nations study which used both survey and census data. Both of these major studies showed that increased levels of mother's education were associated with improved chance of child survival in a wide range of developing countries. Both studies suggested that the associations between mother's education and child survival were stronger in Asia than in sub-Saharan Africa.

Therefore, the relationship between maternal education and children's health is no longer an issue to be debated. There still exists a lack of research information on vaccination coverage and the role of maternal education. Others socio-economic factors like income, occupation, and social class are often mentioned as important factors in influencing vaccination coverage. According to Wadom (2021), a few of the possible ways that have been focusea so far are pointed out below for education as a potential determinant for increasing vaccination coverage specially measles vaccination uptake:

- (i) Education gives the basic ideas about the path of wellbeing and also equips and encourages increasing mother's know ledge on 'healthy living
- (ii) Education equips mothers with the knowledge of proper health behavior and illness behavior for preventive and curative measures
- (iii) Education makes the mothers more willing to use health care services when necessary and preparing them for overcoming the barriers in doing so
- (iv) Education allows greater exposure to the mass media, which can keep mothers better informed about the health issues
- (v) Education empowers mothers to make and implement proper and timely decisions regarding their children's health. An empowered woman can look after the health issues of her offspring better than an un-empowered or underpowered woman

Health Education and Control of Mumps

Mumps (Parotitis) is an acute salivary glands viral infection due to a paramyxovirus family species. Paramyxovirus, mainly mumps, has an important effect in the etiology, and pathogenesis of multiple sclerosis (MS) (Wadon, 2021). Characteristic clinical features are; parotid salivary glands swelling with a characteristic "hamster-like" face. Mumps' symptoms include: high temperature, headache, muscle aches, tiredness, and loss of appetite. Symptoms frequently appear 2 weeks after infection, and may continue 2-3 weeks after infection. Clinically symptoms range from severe to asymptomatic in some mumps patients. Transmission of Mumps occurs through mucus or saliva (Onachu, 2020). According to Soje (2020), the child can get mumps virus by coughing, sneezing, talking, sharing items and touching of other patients.

Transmission of mumps occurs rapidly even before appearance of signs and symptoms. Complications may occur 5 days after acquiring mumps. Encephalitis and meningitis are the worst complications of mumps accompanied by orchitis, mastitis and oophoritis. Complications may affect both males and females. Other complications include the following: deafness, pancreatitis and orchitis. Mumps, infections give permanent immunity for life. MMR vaccine (measles, mumps and rubella vaccine) is used in controlling these 3 diseases and used globally. MMR is given in multiple doses to children according to WHO recommendations. MMR 1st dose administration should be from 12 to 15 months of birth. MMR 2nd dose must be given at 4-6 years. Active MMR vaccination should be re-administered to children from 1-12 years. Active MMR vaccination is given to adolescents, especially females.

According to Adeyeye (2020) in recent years, school closure has frequently been suggested as a strategy to mitigate epidemics. Using real life data on social contacts and serological evidence of infection. Wallinga *et al.* showed in a simulation study of the spread of mumps and pandemic influenza that school-aged children and young adults have the highest incidence of infection and contribute most to the further spread of infection during a respiratory epidemic in a completely susceptible population (Wadom. 2021). This pattern is irrespective of the infectivity of the disease and suggests that the targeting of school-aged children to contain an epidemic can be very effective. In addition, there are reports of the beneficial effects of school holidays and school strikes on the spread of influenza and other respiratory infections. The exact role of schools in the spread of epidemics remains to be seen.

Wadom (2021) argued that mumps is endemic worldwide with epidemic outbreaks occurring approximately every five years in unvaccinated regions, fine mumps virus is highly infectious and transmissible through direct contact with respiratory droplets, saliva, and household fomites. Up to one-third of individuals infected exhibit no symptoms, but are contagious. Introduction of the mumps vaccine in the year 1967 resulted in a 99,8% reduction of documented cases in the United States by 2001. Several confounding factors caused recent outbreaks in the United Kingdom, Canada, and the United States during the early 2000s. A combination of waning vaccine immunity over time, the continuing global epidemic of mumps in non-vaccinated populations, and the absence of a wild-type virus to boost immune responses within vaccinated individuals (Pianma, 2021). These factors coupled with individuals living in close quarters such as college dormitories allow the spread of a respiratory virus such as mumps to cause an outbreak.

Health Education and Control of Control of Chicken Pox

Chickenpox is a very contagious disease caused by the varicella-zoster virus. It usually begins with a mild fever and an itchy rash (Adeyeye. 2020). The rash starts with crops of small red bumps on the stomach or back and spreads to the face and limbs. The red bumps rapidly become blistered, oozy and then crust over. People may have only a few bumps or may be totally covered. Once a person has had chickenpox, the varicella-zoster virus stays without symptoms in the body's nerve cells. In some people (for unknown reasons), the virus can become active again at some later time as "shingles" or zoster. This problem includes a red, painful, itchy, blistering rash, usually in the line along one side of the body. There is no fever. The virus is shed in the blister fluid of the rash and can cause chickenpox in a person who has not had it, if that person has direct contact with the infected shingles blisters.

According to Murray (2021), the chickenpox symptoms may be treated with anti-itching medicine and lotions, fever control, fluids and rest. Because of a possible association with Reye's syndrome (i.e vomiting, liver problems and coma), salicylate-containing products (i.e., aspirin) should not be used for fever control. Acetaminophen may be used for fever control (Wuyan, 2020). Scratching should be avoided because it can cause infection and scarring. A medication to decrease the severity of symptoms is available for high-risk children. This must be given within 24 hours of the onset of rash. Please consult the Division of Public Health Service, Bureau of Infectious Disease Control or the child's physician for more information.

Markery (2021), argued that breaking the itchy blisters open by scratching them may lead to a bacterial infection in the skin and leave scars. The risk of scarring is lowest if the scabs just fall off on their own. The amount of scarring will also depend on the size of the blisters. The virus can also lead to pneumonia in adults with very severe cases of chickenpox. Very rarely the viruses may attack the blisters. The virus can also lead to pneumonia in adults with very severe cases chickenpox. Very rarely the viruses may attack the central nervous system, resulting in meningitis or encephalitis. The risk of this happening is greater in people with a weakened immune system, for instance due to cancer, AIDS or another serious disease. Once chickenpox has gone away, the varicella-zoster viruses are inactive but they stay in the body. The viruses may become active again many years later, leading to shingles. This condition causes a skin rash that can be very painful. It is most common in older people and people who have a weakened immune system. Adults with shingles can infect others who are not immune to the virus. Those people then develop chickenpox. If a woman gets chickenpox within the first six weeks of pregnancy, the viruses can cause serious abnormalities in the unborn baby. A chickenpox infection close to a baby's due date can be life-threatening to the baby, whose immune system is not yet developed enough to fight off viruses.

According to Garry (2020), the vaccination recommendations issued by the German Standing Committee on Vaccination (STIKO) apply to all children over eleven months of age, but also include the following groups, provided they have not had chickenpox already: teenagers, women hoping to get pregnant and people who have certain other conditions such as severe eczema. Chickenpox vaccinations are covered by statutory health insurers. The vaccination consists of two injections given about four to six weeks apart. If you have never had chickenpox and are not vaccinated, you can still get vaccinated within five days of coming into contact with someone who is infected. Doing that can keep you from developing chickenpox, or at least help make the symptoms milder. Vaccinations should no longer be given during pregnancy, but pregnant women who are at risk of infection can also have antibodies injected to fight the viruses (Kirkby. 2020). This is called passive immunization, and it is also an option for newborns if their mother develops chickenpox a few days before or after the birth. People who have been immunized, can still get chickenpox. That rarely happens, though, and then the symptoms are usually milder. There is also a lower risk of complications. As of March 2013, chickenpox is classified as a notifiable disease in Germany. This means that till doctors must inform their local health authority even, if someone is only thought to have chickenpox. If a child is infected, the health authority might then contact the parents to tell them to keep the child at home until he or she is no longer contagious. Anyone who has chickenpox should avoid direct contact with other people as much as possible - unless it's known that they've already had it (Soje, 2020). You should be specially careful around pregnant women and people who are at a higher risk of having more severe chickenpox.

According to Deborah (2022) usually only the symptoms of chickenpox are treated. In more severe cases, or if there is a greater risk of complications, antiviral drugs can be used to fight off the virus. Lotions, gels and powders are often applied to the skin in order to relieve the itching and dry out the blisters. Most of them contain zinc, menthol or povidone-iodine. Sometimes oral medication like antihistamines is also recommended to stop the itching. But there is no good-quality scientific research on how effective these treatments are. Symptoms like fever or joint pain can be relieved using medicine that contains acetaminophen (paracetamol). However, Garry (2021) argued that the painkiller ibuprofen is not suitable for children with chickenpox. Children and teenagers can only take acetylsalicylic acid (ASA, the drug in medicines like Aspirin) if it has been prescribed by a doctor, and only as a last resort. This is because it can cause a rare but dangerous side effect called Reye's syndrome in children and teenagers.

Health Education and Control of Conjunctivitis (Apolo)

Conjunctiva is a thin, transparent mucous membrane, which lines the inner surface of the eyelids and covers the sclera (the white part of the eye) (Duncan, *et al.*, 2022). The

conjunctiva contains glands which produce secretions that help to keep the eyes moist, and antibodies, which reduce infection. Conjunctivitis means inflammation of the conjunctiva, and the commonest cause is infection by viruses or bacteria. Conjunctivitis can also be due to chemical irritants, traditional eye remedies or allergy. It is usual for both eyes to be affected in infectious cases. The patient notices that the eyes are red and uncomfortable, and there is discharge which may make the eyelids stick together in the morning. Wadon (2021) argued that the vision is usually not affected. On examination the eyelids may be slightly swollen, the eyes are red, and there may be some visible discharge. The cornea should be bright, and the pupils should be round, regular and react to light. Conjunctivitis due to infection occurs at all ages, but some of the less common causes affect particular age groups.

According to Markery (2021), approximately 1% of all patient visits to a primary care clinician are conjunctivitis related, and the estimated cost of the bacterial conjunctivitis alone is \$377 million to \$857 million annually. Relying on the signs and symptoms often leads to an inaccurate diagnosis. Nonherpetic viral conjunctivitis followed by bacterial conjunctivitis is the most common cause for infectious conjunctivitis. Allergic conjunctivitis affects nearly 40% of the population, but only a small proportion seeks medical care. The majority of viral conjunctivitis cases are due to adenovirus. There is no role for the use of topical antibiotics in viral conjunctivitis, and they should be avoided because of adverse treatment effects. Using a rapid antigen test to diagnose viral conjunctivitis and avoid inappropriate use of antibiotics is an appropriate strategy (Duncan, et al. 2022). Bacterial pathogens are isolated in only 50% of cases of suspected conjunctivitis, and at least 60% of bacterial conjunctivitis (clinically suspected or culture proven) is self-limited without treatment. Cultures are useful in cases that do not respond to therapy, cases of hyperacute conjunctivitis, and suspected chlamydial conjunctivitis (Boye, 2020). Treatment with topical antibiotics is usually recommended for contact lens wearers, those with mucopurulent discharge and eye pain, suspected cases of chlamydial and gonococcal conjunctivitis, and patients with preexisting ocular surface disease. The advantages of antibiotic use include early resolution of the disease, early return to work or school, and the possibility of decreased complications from conjunctivitis. The majority of cases of allergic conjunctivitis are due to seasonal allergies. Antihistamines, mast cell inhibitors, and topical steroids (in selected cases) are indicated for treating allergic conjunctivitis. Steroids must be used judiciously and only after a thorough ophthalmologic examination has been performed to rule out herpetic infection or corneal involvement, both of which can worsen with steroids.

According to the World Health Organisation (2020), conjunctiva is a thin, translucent membrane lining the anterior part of the sclera and inside of the eyelids it has 2 parts, bulbar and palpebral. The bulbar portion begins at the edge of the cornea and covers the visible part of the conjunctiva is known as conjunctivitis and is characterized by dilatation of the conjunctival vessels, resulting in hyperemia and edema of the conjunctiva, typically with associated discharge. Conjunctivitis affects many people and imposes economic and social burdens. It is estimated that acute conjunctivitis affects 6 million people annually in the United States. The cost of treating bacterial conjunctivitis alone was estimated to be \$377 million to \$857 million per year (Pianma, 2021).

Adeyeye (2020) argues that approximately 70% of all patients with acute conjunctivitis present to primary care and urgent care. The prevalence of conjunctivitis varies according to the underlying cause, which may be influenced by the patient's age, as well as the season of the year (Kirkby, 2020). Viral conjunctivitis is the most common cause of infectious conjunctivitis both overall and in the adult population and is more prevalent in summer. Bacterial conjunctivitis is the second most common cause and is responsible for the majority (50% - 75%) of cases in children: it is observed more frequently from December through April. Allergic conjunctivitis is the most frequent cause, affecting 15% to 40% of the population, and is observed more frequently in spring and summer.

According to Duncan et al, (2022), conjunctivitis can be divided into infectious and noninfectious causes. Viruses and bacteria are the most common infectious causes. Noninfectious conjunctivitis includes allergic, toxic, and cicatricial conjunctivitis, as well as

inflammation secondary to immune mediated diseases and neoplastic processes. The disease can also be classified into acute, hyperacute, and chronic according to the mode of onset and the severity of the clinical response. Furthermore, it can be either primary or secondary to systemic diseases such as gonorrhea, Chlamydia, graft-vs-host disease, and Reiter syndrome, in which case systemic treatment is warranted. It is important to differentiate conjunctivitis from other sight threatening eye diseases that have similar clinical presentation and to make appropriate decisions about further testing, treatment, or referral. An algorithmic approach using a focused ocular history along with a penlight eye examination may be helpful in diagnosis and treatment (Wadon, 2021). Because conjunctivitis and many other ocular diseases can present as “red eye”, the differential diagnosis of red eye and knowledge about the typical features of each disease in this category are important.

Focused ocular examination and history are crucial for making appropriate decisions about the treatment and management of any eye condition, including conjunctivitis. By discharge type and ocular symptoms can be used to determine the cause of the conjunctivitis, for example, a purulent or mucopurulent discharge is often due to bacterial conjunctivitis, whereas a watery discharge is more characteristic of viral conjunctivitis; itching is also associated with allergic conjunctivitis. However, the clinical presentation is often nonspecific. Relying on the type of discharge and patient symptoms does not always lead to an accurate diagnosis (Adeyeye, 2020), furthermore, scientific evidence correlating conjunctivitis signs and symptoms with the underlying cause is often lacking. For example, in a study of patients with culture-positive bacterial conjunctivitis, 58% had itching, 65% had burning, and 35% had serious or no discharge at all, illustrating the non-specificity of the Huns and symptoms of this disease. In 2003, a large meta-analysis failed to find any clinical studies correlating the signs and symptoms of conjunctivitis with the underlying cause: later, the same authors conducted a prospective study and found that a combination of 3 signs bilateral matting of the eyelids, lack of itching, and no history of conjunctivitis strongly predicted bacterial conjunctivitis. Having both eyes matter and the lids adhere in the morning was a stronger predictor for pa-alive bacterial culture result, and either itching or a previous episode of conjunctivitis made a positive bacterial culture result less likely (Boye, 2020). In addition, type of discharge (purulent, mucus, or watery) or other symptoms were not specific to any particular class of conjunctivitis. Although in the primary care setting an ocular examination is often limited because of lack of a slitlamp, useful information may be obtained with a simple penlight. The eye examination should focus on the assessment of the visual acuity, type of discharge, corneal opacity, shape and size of the pupil, eyelid swelling, and presence of proptosis.

Viral conjunctivitis secondary to adenoviruses is highly contagious, and tire risk of transmission has been estimated to be 10% to 50%, 6.14. The virus spreads through direct contact via contaminated fingers, medical instruments, swimming pool water, or personal items; in one study, iii of infected people had positive cultures grown from swabs of their hands. Because of the high rates of transmission, hand washing, strict instrument disinfection, and isolation of the infected patients from the rest of the clinic has been advocated (Markery, 2021). Incubation and communicability are estimated to be 5 to 12 days and 10 to 14 days, respectively.

Although no effective treatment exists, artificial tears, topical antihistamines, or cold compresses may be useful in alleviating some of the symptoms. Available antiviral medications are not useful and topical antibiotics are not indicated. Topical antibiotics do not protect against secondary infections, and their use may complicate the clinical presentation by causing allergy and toxicity, leading to delay in diagnosis of other possible ocular diseases. Use of antibiotic eyedrops can increase the risk of spreading the infection to the other eye from contaminated droppers. Increased resistance is also of concern with frequent use of antibiotics. Patients should be referred to an ophthalmologist if symptoms do not resolve after 7 to 10 days because of the risk of complications.

METHODOLOGY

The descriptive survey research design is adopted in this study. This study was carried out in Nsit Ibom is a Local Government Area in Akwa Ibom State. The population of the study was one thousand two hundred, and eleven (1,211) primary school pupils. This number comprised all primary four (4) pupils in Nsit Ibom Local Government Area. Simple random sampling technique was used in selecting respondents for the study. A sample size of 120 primary 4 pupils was randomly selected from 5 public schools in Nsit Ibom Local Government Area. The researcher selected 24 pupils each from the schools sampled in the area of study. The research instrument used for the study was a researcher designed instrument titled Health Education and Control of Communicable Diseases Instrument (HECDI). The Health Education and Control of Communicable Diseases Instrument (HECDI) had 20 items and a 4 point rating scale with the weight of 4-1 representing Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2, and Strongly Disagree (SD) = 1. 1hr was allowed for answering. A letter of introduction was submitted to the Head Teacher of the various schools sampled for this study to attain approval for conducting the research. To administer the instrument, the researcher sought the help of two assistants. In order to determine the reliability of the instrument, a test retest method was adopted. The researcher administered the questionnaire twice to the same group of respondents who were not part of the study at different times. A reliability coefficient of 0.84 was established for the instrument using the Pearson Product Moment Correlation. This shows a suitability of the instrument for use. Independent t-test, mean and standard deviation was used to answer research questions and lest the stated hypotheses.

Results

Research Question 1

What is the relationship between health education and control of measles among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State?

Table 1: PPMC Analysis of relationship between health education and control of measles among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State (n = 120)

Variables	$\sum X$	$\sum X^2$	$\sum XY$	r	R ²
Health	852	3192			
Education			2071	0.321	0.103
Measles	799	3389			

Data in table 1 reveal the strength of relationship between health education and the control of measles. The PPMCC analysis on the relationship between health education and control of measles among primary school pupils has revealed a positive correlation coefficient (r) of 0.321 and the negative correlation coefficient (r) of 0.103. Therefore, this implies that there is a relationship between health education and the control of measles among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State.

Research Question 2

What is the relationship between health education and control of chicken pox among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State?

Table 2: PPMC Analysis of relationship between health education and control of chicken pox among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State (n = 120)

Variables	$\sum X$	$\sum X^2$	$\sum XY$	r	R ²
	$\sum Y$	$\sum Y^2$			
Health	963	2192			
Education			3181	0.381	0.145
Chicken Pox	682	4925			

Data in table 2 reveal the strength of relationship between health education and the control of chicken pox. The PPMCC analysis on the relationship between health education and control of chicken pox among primary school pupils has revealed a positive correlation coefficient (r) of 0.381 and the negative correlation coefficient (r) of 0.145. Therefore, this implies that there is a relationship between health education and the control of chicken pox among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State.

Research Question 3

To what extent does health education relate to the control of conjunctivitis (apolo) among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State?

Table 3: PPMC Analysis of relationship between health education and conjunctivitis among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State (n = 120)

Variables	$\sum X$	$\sum X^2$	$\sum XY$	r	R ²
	$\sum Y$	$\sum Y^2$			
Health	1821	2817			
Education			53811	0.731	0.134
Conjunctivitis	1121	16241			

Data in table 3 reveal the strength of relationship between health education and the control of conjunctivitis. The PPMCC analysis on the relationship between health education and conjunctivitis in public primary schools has revealed a positive correlation coefficient (r) of 0.731 and the negative correlation coefficient (r) of 0.134. Therefore, this implies that there is a relationship between health education and the control of conjunctivitis among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State.

Research Question 4

How does health education relate to the control of mumps among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State?

Table 4: PPMC Analysis of relationship between health education and control of mumps among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State (n = 120)

Variables	$\sum X$	$\sum X^2$	$\sum XY$	r	R ²
	$\sum Y$	$\sum Y^2$			
Health	1487	3164			
Education			3211	0.269	0.12
Mumps	853	11342			

Data in table 4 reveal the strength of relationship between health education and the control of mumps. The PPMCC analysis on the relationship between health education and control of mumps among primary school pupils has revealed a positive correlation coefficient (r) of 0.269 and the negative correlation coefficient (r²) of 0.12. Therefore, this implies that there is a relationship between health education and the control of mumps among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State.

Hypothesis 1

There is no significant relationship between health education and control of measles among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State?

Table 5: PPMC Analysis on the significant relationship between health education and control of measles among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State (n = 120)

Variables	$\sum X$	$\sum X^2$	$\sum XY$	r	R ²
	$\sum Y$	$\sum Y^2$			
Health	852	3192			
Education			2071	0.71	1.96
Measles	799	3389			

A calculated r-value of 4.71 (r-cal.) was obtained against the critical r-value of 1.96 (r-crit) on a 0.05 significant level. The rule on the test of significance provides that when r-cal is greater than the r-crit, then such a relationship is considered as being significant. The null hypothesis therefore rejected. There is a significant relationship between health education and control of measles among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State.

Hypothesis 2

There is no significant relationship between health education and control of chicken pox among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State?

Table 6: PPMC Analysis on the significant relationship between health education and control of chicken pox among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State (n = 120)

Variables	ΣX	ΣX^2	ΣXY	r	R ²
Health	963	2192			
Education			3211	3.821	1.073
Chicken Pox	682	4925			

A calculated r-value of 3.821 (r-cal.) was obtained against the critical r-value of 1.073 (r-crit) on a 0.05 significant level. The rule on the test of significance provides that when r-cal is greater than the r-crit, then such a relationship is considered as being significant. The null hypothesis therefore rejected. There is a significant relationship between health education and control of chicken pox among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State.

Hypothesis 3

There is no significant relationship between health education and control of conjunctivitis (apollo) among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State.

Table 7: PPMC Analysis on the significant relationship between health education and control of conjunctivitis (apollo) among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State (n = 120)

Variables	ΣX	ΣX^2	ΣXY	r	R ²
Health	1821	2817			
Education			53811	0.972	0.418
Mumps	1121	16241			

A calculated r-value of 0.972 (r-cal.) was obtained against the critical r-value of 0.418 (r-crit) on a 0.05 significant level. The rule on the test of significance provides that when r-cal is greater than the r-crit, then such a relationship is considered as being significant. The null hypothesis therefore rejected. There is a significant relationship between health education and control of conjunctivitis (apollo) among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State.

Hypothesis 4

There is no significant relationship between health education and control of mumps among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State.

Table 6: PPMC Analysis on the significant relationship between health education and control of mumps among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State (n = 120)

Variables	$\sum X$	$\sum X^2$	$\sum XY$	r	R^2
Health	1487	3164			
Education			3181	2.933	0.653
Mumps	853	16241			

On the test of significance, a calculated r-value of 2.933 (r-cal.) was obtained against the critical r-value of 0.653 (r-crit) on a 0.05 significant level. The rule on the test of significance provides that when r-cal is greater than the r-crit, then such a relationship is considered as being significant. The null hypothesis therefore rejected. There is a significant relationship between health education and control of mumps among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State.

Discussing of Findings

Health Education and Control of Measles

Analysis in table 5 revealed that there is a significant relationship between health education and control of measles among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State. This finding implies that when children receive better health education knowledge, they are in more capable position to prevent the spread of measles. In line with the opinions of Marker (2021), that when children in nurtured in certain directions, they grow to be more cautious and observant especially in harmful situation to their health. Also, variables such as maternal health education and occupation and household’s economic status, have consistently influenced measles vaccination at an interpersonal level in developing countries. Pianma (2021) argued that the importance of mothers’ education for child survival has been brought into focus by consistent research. Health education plays an important role in determining child survival even after control for a number of other factors including socio-economic characteristics of the husband, as his educational level and occupation. Furthermore, Joria (2020) opined that increased levels of health education were associated with improved chances of child survival in a wide range of developing countries such that the associations between mother’s health education and child survival were stronger in sub-Saharan Africa. Finally, Markery (2021) argued that the relationship between child health education and their actual health is no longer an issue to be debated. However socio-economic factors like income, occupation, and social class are often mentioned as important factors in influencing vaccination coverage.

Health Education and Control of Chicken Pox

Data analysed in table 6 indicated that there is a significant relationship between health education and control of chicken pox among primary school pupils in Nsit Ibom Focal Government Area, Akwa Ibom State. According to Adeyeye (2020), health education is often indicated to accommodate an individual approach by substituting the three domains of health:

healthcare, disease prevention and health promotion with being ill, being at risk, and staying healthy. Health education bears significance in improving prevention and control of infectious diseases, whereas health knowledge and behavior are important components of health education. Furthermore Kirkby (2020) argues that improving the health education of students on infectious diseases serves as an important channel in controlling epidemics and outbreaks of infectious diseases in schools. Health education can improve student knowledge on infectious diseases and promote the development of appropriate behaviors toward infectious disease prevention and control. Health promotion is based on health education, which is founded on health knowledge. Finally, Okanawa (2021) opined that health education effectively slows spread of infectious diseases, and conducting school health education programs not only provides students with proper knowledge and behavior toward infectious diseases but also benefits the comprehensive development of schools. Therefore, health education must be strengthened to improve health literacy of students.

Health Education and Control of Conjunctivitis (Apollo)

Based on data analysed in table 7, there is no significant relationship between health education and control of conjunctivitis (apollo) among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State. Bove (2020) argues infectious disease can be a major cause of illness among children and can affect a child's schooling by causing absenteeism. They may in turn, affect other children and staff, and can prevent parents careers ability to work, especially where both parents careers work. School health programs could not be fully implemented without having staff and parent's cooperation and involvement. Parents, community leaders and teachers often can and do serve as role models for students. Students serve as a linkage with school and family while parents can and should cooperate with schools to help their children. Furthermore, Wadom (2021) opined that communicable diseases spread quickly among students in the classroom, more must be gathered printable and advise for germ prevention in school. Recent years have seen a dramatic increase in public concern about communicable diseases in the schools all over the world. Deborah (2022) insist that school administrations must find ways to strike a balance between protecting the general school population from exposure to dangerous communicable diseases and ensuring the infected student's right to privacy and to public education. Children do not enjoy long term health due to the presence of several communicable diseases; they also suffer from multiple infestations and illnesses. As a consequence, their morbidity rate is high resulting from poor environmental conditions, malnutrition, accident and a general lack of health care. Therefore, if health education programmes in schools are rigorously pursued, the frequency of high infectious rates will be kept at the bare minimum.

Health Education and Control of Mumps

Analysis revealed in table 8 indicated that there is a significant relationship between health education and control of conjunctivitis (apollo) among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State, in the opinions of Adeyeye (2020), knowledge of communicable disease and prevention practices are key elements that ensure the students' health and well-being while in school. Die students' health laces many challenges, even more so in the developing world, especially in school premises where pupils live in close proximity. Teachers are the role model of the pupils while in school, therefore, they may play a central role in ensuring the pupils' health. Liu (2020) studied changes in awareness in measles, rubella, and mumps among middle school students in Tianjin before and after health education intervention and confirmed that health education can improve cognitive level and prevention awareness of infectious diseases, such as mumps. Finally, Carry (2020) revealed that health protection strategies important to communicable diseases include those relevant to safe food, drinking water and recreational water, and adequate community sanitation. Preventive intervention strategies, which impart on communicable diseases, include primary prevention initiatives such as immunization and vector control, and early secondary prevention strategies such as post-

exposure prophylaxis, screening and treatment of communicable diseases and contact tracing and management.

Conclusion

Based on the findings of this work, it concludes that:

- i. There is a significant relationship between health education and control of measles among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State.
- ii. There is a significant relationship between health education and control of chicken pox among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State.
- iii. There is no significant relationship between health education and control of conjunctivitis (apallo) among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State.
- iv. There is a significant relationship between health education and control of chicken pox among primary school pupils in Nsit Ibom Local Government Area, Akwa Ibom State.

Recommendations

In line with the conclusion of this work, the following recommendations are hereby proffered:

1. Since communicable diseases spread at all levels of social gathering, health education should be made a mandatory subject at all levels of education.
2. Curriculum planners should include more materials in primary school curriculum could enlighten children more specifically on the health guidelines to avoid chicken pox, measles, mumps and conjunctivitis.
3. Schools should be mandated to provide washing hand sinks/basins and running water for children to have easy access to handwashing paraphernalia so as to curb the spread of diseases.
4. Non-governmental organizations should organize seminar workshops on the dangers of communicable diseases particularly to growing children who are yet to develop a strong immune system.

REFERENCES

- Adeyeye (2015). The comprehensive school health programme. Exploring and expanded concept. *Journal of School Health* 10(4): 409-412.
- Boye, M. O. (2016). Essentials of school health programme, Ibadan. Macmillian Nig. Ltd.
- Carry, H. E. (2020). How do parents' childfeeding behaviour influence child weight? Implication for childhood obesity policy. *Journal of Public Health*, 2(9): 132-141.
- Deborah, J. O. (2022). Pregnancies in our secondary school: A task for Educators. *Nigerian School Health Journal*, 3(1): 15-20.
- Duncan, J. (2022). Poverty: *The outcome of children*, London: Family Policy Studies Centre.
- Garry, M. D. (2021). The long arm of childhood. The influence of early life social condition on child mortality. *Demography*. 41(1):87-107.
- Joria, S. (2020). Pattern of presentation and utilization of services for mental & neurological disorder in North Eastern Nigeria. A ten year study. *Psychiatry Journal*; 9(6):1-5.
- Kirkby, O. K.(2016). *New comprehensive physical and health education for schools and colleges. Enugu*. Olis Nigeria Ventures.
- Liu, L. (2020). Factors informing HIV providers' decision to start antiretroviral therapy for young people. *Journal of childhood health*. 5(5): 358-365.
- Markery, R. J.(2016). School-based deworming yields small improvement in growth of Zanzibaii school children after one year. *Journal of Nutrition* 1(28): 2187-2193.
- Murray, S. M. (2021). *Childhood: A foundation for future health*. The lancet, 379 (9826), 1630-1640.
- Okanawa, S. O. (2021). Fundamental of education for the Nigeria certificate education. *International Journal of Medical Education*, 2(1):199-201.
- Onachu, A. Y. (2020). Geohelminth infections; Cognitive and development impact. *Seniors in Pediatric Infectious Diseases*, 1(1): 245-251.
- Pianma, O. P. (2017). *Taxonomy of educational objective handbook on cognitive health*. New York: David Mickay.
- Wadom, Y. (2021). Relationship of childhood abuse and household dysfunction as one of the leading causes of death. *American Journal of Preventive Medicine*, 15(14): 254-258.
- World Health Organisation (WPIO, 2020). Childhood Health. *Geneva Convention*. Switzerland.
- Wuyan, M. (2020). Social capital and children substance use: The role of family, school and neighbourhood contexts. *Journal of Child Resolve*, 2(7): 362-378.