Knowledge, Attitude and Practice of Females in the Reproductive Age towards HIV/AIDS in Alsahefa Health Center, Khartoum State, Sudan (2018)

Nazik Ahmed Elbashir Yousif

M.B.B.S AHfad University of Women, Sudan 2005

A Dissertation Submitted to University of Gezira in Partial Fulfillment of the Requirements for the Award of the degree of Master of Science

In
Family Medicine
Department of Family and Community Medicine
Faculty of Medicine
2018
Knowledge, Attitude and Practice of Females in the Reproductive Age towards HIV/AIDS in Alsahafa Health Center, Khartoum State, Sudan (2018)

Nazik Ahmed Elbashir Yousif

Supervisor Committee:

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Sign.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. Magda Elhadi Ahmed Yousif</td>
<td>Main supervisor</td>
<td>...............</td>
</tr>
<tr>
<td>Prof. Salwa ELsanousi Hussein</td>
<td>Co-supervisor</td>
<td>...............</td>
</tr>
</tbody>
</table>
Knowledge, Attitude and Practice of Females in the Reproductive Age towards HIV/ AIDS in Alsahafa Health Center, Khartoum State, Sudan (2018)

Nazik Ahmed Elbashir Yousif

Examination Committee

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Sign.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. Magda Elhadi Ahmed Yousif</td>
<td>Chairman</td>
<td>...............</td>
</tr>
<tr>
<td>Dr. Suleiman Abdgabbar Abdullah Bakheit</td>
<td>External Examiner</td>
<td>...............</td>
</tr>
<tr>
<td>Dr. Osman Hamid Abdulhamid</td>
<td>Internal Examiner</td>
<td>...............</td>
</tr>
</tbody>
</table>
بسم الله الرحمن الرحيم

قال تعالى:

(وَقَلْ رَبِّ رَزْنِي عِلْمًا)

صدق الله العظيم

(طه الآية 114)
Dedication

To
My mother and father whom I love too much.
To
My husband
Who supported me too much during this work
To
My lovely kids
To
My all family members I love
ACKNOWLEDGEMENT

I wish to thank all people who helped me by any mean I would like to thank all members in the community medicine department in Algezira University.

In particular I want to appreciate my Acknowledgement to

Prof MajdaElhadi Ahmed my supervisor for this guidance, advice and to all people who helped in the data processing and statistical analysis casing SPSS.
Knowledge, Attitude and Practice of Females in the Reproductive Age towards HIV/ AIDs in Alsahafa Health Center, Khartoum State, Sudan (2018)

Nazik Ahmed Elbashir Yousif

ABSTRACT

HIV is considered a virus that can lead to a condition called AIDS, and that can lead to immune system deterioration. It’s a complex condition with symptoms that vary from person to person. Its cross sectional health center based study was used. The principle objective of this study was to evaluate the knowledge, attitude and practice about AIDS and it’s control measure and to assess the community participation toward HIV/AIDS control among women in reproductive age (15-49) years. Structured pretested questionnaire was conducted for data collection among 200 women who attended the center in the area of where study, most of them were from Alsahafa. During data collection period, 100% of women have heard about AIDs. The majority of them have heard about AIDs from T.V that is 91.0%. 100% of them know that it can be transmitted through blood and 99.0% through unprotected sexual practice. 96.0% know that HIV/AIDS can be transmitted from infected mother to her baby and the majority of them know that the methods of transmission by placenta 89.6%, 28.0% during delivery, 31.5% by lactation the majority of them know the protective methods, 100% by avoidance illegal sexual practice, 97.5% by avoidance usage of contaminated skin penetrating instruments 47.0% using condoms. In dealing with infected person, 7.0% can eat and drink with, 16% can work and live with, 69.0% cannot wear her clothes, 97.5% do not use needles that had been used by infected person, 57.5% can take care of infected person. 63.5% do not buy the food from an infected person. 31% think that women are not a high risk for HIV/AIDS, to conclude There was a lot of misconception about the mode of transmission and prevention of HIV/AIDS. The results of this study will help recommending a regular health education programs to increase awareness of preventive strategies for HIV/AIDS and strengthening risk perception.
المعرفة، السلوك والممارسة (KAP) للإيدز بين الإناث في سن الإنجاب في مركز الصحافة الصحي، ولاية الخرطوم، السودان (2018)

نازك احمد البشير يوسف

ملخص الدراسة

يعتبر فيروس نقص المناعة البشرية فيروسًا يمكن أن يؤدي إلى حالة تسمى الإيدز (متلازمة نقص المناعة المكتسبة)، والتي يمكن أن تؤدي إلى تدهور جهاز المناعة. إنها حالة معقدة تتضمن أعراضًا تختلف من شخص لآخر. استُخدمت الدراسة في هذا البحث. وكان الهدف الأساسي لهذه الدراسة هو تقييم المعرفة والمواصفات والممارسات المتعلقة بالإيدز والتدبير العلاجي الخاص به وتقييم مشاركة المجتمع في مكافحة فيروس نقص المناعة البشرية / الإيدز بين النساء في مجال الإنجاب. العمر (15-49) سنة. استُخدم الاستبيان كأداة رئيسية لجمع البيانات بين 200 امرأة حضرن إلى المركز في مجال الدراسة، معظمهن من الصحافة. وخلال فترة جمع البيانات، 100٪ من النساء سمعن عن الإيدز. وقد سمعن عن الإيدز من التلفزيون الذي هو 91.0 ٪. 100٪ من ذلك يعرف أنه يمكن أن ينتقل عن طريق الدم . 99.0 ٪ من خلال الممارسات الجنسية غير المحمية. 96 ٪ يعلمون أن فيروس نقص المناعة البشرية / الإيدز يمكن أن تنتقل من الأم المصابة لطفلها ويرفم معظمهم أن طرق الانتقال من المشيمة بنسبة 89.6 ٪، 25.0 ٪ أثناء الولادة. 31.5 ٪ بالرضاعة ، معظمهم يعرفون طرق الوقاية ، 100 ٪ بتجنب الممارسة الجنسية غير القانونية ، 97.5 ٪ بتجنب الأدوات الملوثة الثاقبة المخترقة للجلد. 47.0 ٪ باستخدام الواقي الذكري. عند التعامل مع شخص مصاب يمكن لـ 7.0 ٪ تناول الطعام والشراب ، و 31٪ يمكن أن يعملوا ويعيشون ، و 69.0 ٪ لا يستطيعون ارتداء ملابسهم ، و 97.5 ٪ لا يستطيعون الإبر التي استخدمها الشخص المصاب ، و 57.5 ٪ يمكن أن يعتنوا بالمصابين. 63.5 ٪ لا يشترون الطعام من شخص مصاب به 31٪ يعتقدون أن النساء ليسوا عرضة للإصابة بفيروس نقص المناعة البشرية / الإيدز ، وأن هناك الكثير من المفاهيم الخاطئة حول طريقة انتقال المرض والوقاية منه. ستساعد هذه الدراسة في التوصية برامج تعليم صحي منظمة لزيادة الوعي بالاستراتيجيات الوقائية لفيروس نقص المناعة البشرية / الإيدز وتعزيز إدراك المخاطر.
# Table of Contents

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dedication</td>
<td>II</td>
</tr>
<tr>
<td>Acknowledgment</td>
<td>III</td>
</tr>
<tr>
<td>Abstract in English</td>
<td>IV</td>
</tr>
<tr>
<td>Abstract in Arabic</td>
<td>V</td>
</tr>
<tr>
<td>Table of Contents</td>
<td>VI</td>
</tr>
<tr>
<td>List of Tables</td>
<td>IX</td>
</tr>
<tr>
<td>List of Figure</td>
<td>X</td>
</tr>
<tr>
<td>List of Abbreviations</td>
<td>XI</td>
</tr>
</tbody>
</table>

## Chapter One (Introduction)

1.1 Introduction                                   1
1.2 problem Statement                              3
1.3 Justification                                  4
1.4 Objectives                                     5
1.4.1 General Objective                            5
1.4.2 The specific objectives                      5

## Chapter Two (Literature Review)

2.1 Definition                                     6
2.2 Historical Background                          8
2.3 Origin of HIV and AIDS                         9
2.4 Mechanism of HIV infection                     10
2.5 Transmission                                   11
2.6 Epidemiology                                   13
2.7 Incubation Period                              15
2.8 HIV/AIDS Medical symptoms and impacts          16
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.9. Sudan National policy and Guidelines on HIV/AIDS and STDS control</td>
<td>19</td>
</tr>
<tr>
<td>2.10. Virology</td>
<td>21</td>
</tr>
<tr>
<td>2.11. The Replication of HIV</td>
<td>22</td>
</tr>
<tr>
<td>2.12. Opportunistic infection</td>
<td>23</td>
</tr>
<tr>
<td>2.13. Effect of HIV infection</td>
<td>24</td>
</tr>
<tr>
<td>2.14. Complication of HIV infection</td>
<td>26</td>
</tr>
<tr>
<td>2.15. Laboratory diagnosis</td>
<td>27</td>
</tr>
<tr>
<td>2.16. Treatment</td>
<td>29</td>
</tr>
<tr>
<td>2.17. Control of AIDS</td>
<td>32</td>
</tr>
<tr>
<td>2.18. Previous Study</td>
<td>33</td>
</tr>
</tbody>
</table>

**Chapter Three (Research Method)**

| 3.1 Study type                                             | 36   |
| 3.2 study area                                             | 36   |
| 3.3 Study population                                       | 36   |
| 3.4 Study variables                                        | 37   |
| 3.5 study duration                                         | 37   |
| 3.6 Sample Size and technique                              | 37   |
| 3.7 data collection                                        | 37   |
| 3.8 data analysis                                          | 37   |
| 3.9 data presentations                                     | 37   |
| 3.10 Ethical consideration                                 | 38   |

**Chapter Four (Results)**

| 4.1 Results                                                | 39   |
### Chapter Five (Discussion)

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.2 Discussion</td>
<td>50</td>
</tr>
</tbody>
</table>

### Chapter six (Conclusions and Recommendations)

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1 Conclusions</td>
<td>52</td>
</tr>
<tr>
<td>6.2 Recommendations</td>
<td>53</td>
</tr>
<tr>
<td>References</td>
<td>54</td>
</tr>
<tr>
<td>Appendices</td>
<td>56</td>
</tr>
</tbody>
</table>
List of Table

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table (1) Distribution of Age among female in reproductive Age (15-49) (n=200)</td>
<td>39</td>
</tr>
<tr>
<td>Table (2) Education level among female in reproductive Age (15-49) (n=200)</td>
<td>40</td>
</tr>
<tr>
<td>Table (3) Job Distribution (n=200)</td>
<td>40</td>
</tr>
<tr>
<td>Table (4) Job Distribution (n=200)</td>
<td>41</td>
</tr>
<tr>
<td>Table (5) Distribution of resident (n=200)</td>
<td>41</td>
</tr>
<tr>
<td>Table (6) Source of Knowledge (n=200)</td>
<td>42</td>
</tr>
<tr>
<td>Table (7) Knowledge of participant about Symptoms (n=200)</td>
<td>42</td>
</tr>
<tr>
<td>Table (8) Knowledge of participant about mode of transmission (n=200)</td>
<td>43</td>
</tr>
<tr>
<td>Table (9) Knowledge of participant about Rout of transmission from pregnant women to her baby (n=200)</td>
<td>43</td>
</tr>
<tr>
<td>Table (10) Knowledge of participants about the best way of prevention(n=200)</td>
<td>44</td>
</tr>
</tbody>
</table>
## List of Figure

<table>
<thead>
<tr>
<th>Table</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fig (1-7) Percentage of those who know Attitude towards people Living with HIV/ AIDS</td>
</tr>
<tr>
<td>Fig (8) Is the women are at high risk for HIV/AIDS?</td>
</tr>
<tr>
<td>Fig (9) Causes of high risk women?</td>
</tr>
<tr>
<td>Fig.(10) Is HIV/ AIDS making health problem in Khartoum state?</td>
</tr>
<tr>
<td>Fig. (11) Is HIV/ AIDSdiscuses with your family and how to protected?</td>
</tr>
<tr>
<td>Fig (12) Is there they HIV / AIDS society at your district?</td>
</tr>
<tr>
<td>Fig. (13)Is there any awareness sessions held in the residence?</td>
</tr>
<tr>
<td>Abbreviation</td>
</tr>
<tr>
<td>--------------</td>
</tr>
<tr>
<td>AIDs</td>
</tr>
<tr>
<td>AZT</td>
</tr>
<tr>
<td>CDC</td>
</tr>
<tr>
<td>CDs</td>
</tr>
<tr>
<td>CMV</td>
</tr>
<tr>
<td>DNA</td>
</tr>
<tr>
<td>Eliza</td>
</tr>
<tr>
<td>ESR</td>
</tr>
<tr>
<td>HIV</td>
</tr>
<tr>
<td>HSV</td>
</tr>
<tr>
<td>MOH</td>
</tr>
<tr>
<td>PHC</td>
</tr>
<tr>
<td>PLWHA</td>
</tr>
<tr>
<td>RNA</td>
</tr>
<tr>
<td>STIs</td>
</tr>
<tr>
<td>TB</td>
</tr>
<tr>
<td>T.V</td>
</tr>
<tr>
<td>UN AIDs</td>
</tr>
<tr>
<td>WHO</td>
</tr>
</tbody>
</table>
Chapter One
1.1 Introduction:

Acquired immune deficiency syndrome (AIDs) is a viral immunodeficiency disease. It is becoming a worldwide problem; it is caused by human immunodeficiency virus. (HIV) of which two serotypes are recognized.

- HIV type (1) is the predominant serotype worldwide.
- HIV type (2) occurs most commonly in West Africa.

They both cause AIDS, and the routes of transmission are the same. The AIDs threat as considered by the respondent's world, with. Subjects leading more loose sex life fearing infections relatively less. It may be supposed that it was due to a greater experience with the infection, better knowledge and lower threat awareness. The lack of threat awareness among society seems to be determined in an equal degree by the low knowledge of AIDS and relatively small number of cases in this Country. This limited knowledge of AIDs / may lead to a more rapid spread of the disease, and consequently, to panic reactions, intolerance and aggression against patients and risk groups. This could be prevented only by appropriate health education. HIV/ AIDs is occurring epidemically worldwide affecting parenteral drug users , homosexual, bisexual, hemophilia's and children born to infected mother (i.e. trans placental or during delivery) . In addition to the other ways of infection like blood transfusion and other blood products. AIDS is like any other viral infection it has no specific treatment but it is very important to reassure the patient since the disease cannot be contracted by ordinary contact. Also psychological support, medical care and treatment of any symptoms of infection should be given high consideration. AIDs situation is very serious and getting worse. It is fighting back against human race, like all emerging and re-emerging diseases. UN—AIDs and WHO confirm that most of the affected people are young adult ageing (15—49) years. The most affected subjects among this group were women which accounts for about 50% of cases because of a large presence of other STIs such as syphilis and gonorrhea. Its control is becoming
more difficult many people are not concerned about protecting themselves but the chance is great to prevent and control the disease. (Luo et al., 2008)

The number of Adults and children living with HIV/ AIDs: 36.7 Million (30.8Million/42.9Million)

<table>
<thead>
<tr>
<th></th>
<th>Number of people living with HIV</th>
<th>36.7 Million</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>(all age) at 2016</td>
<td>1.8 Million children</td>
</tr>
<tr>
<td>3</td>
<td>People died of HIV related illnesses word wide in 2016</td>
<td>1 Million</td>
</tr>
<tr>
<td>4</td>
<td>people living with HIV on antiretroviral therapy</td>
<td>18.2 Million</td>
</tr>
</tbody>
</table>

- In 2016 there were 36.7 Million(30.8Million/42.9Million) people living with HIV.
- As of 2016 19.5 Million (17.2Million – 20.3Million) people living with HIV on antiretroviral therapy, up from 17.1Million (15.1Million 17.8Million) in 2015 and 7.7 Million (6.8Million – 8.0Million) in 2010 and 4.8 (4.2Million – 6.3Million) in 2003 (Luo et al., 2008)


| Adults and children living with HIV | 51 000 (27 0000 –M 84 000) |
| Adults aged 15 and over living with HIV | 48 000 (25 000 – 80 000) |
| Adults aged 15- 49 HIV prevalence rate | 0.2 (0.1 – 0.4) |
| Adults and children newly infected with HIV | 4700 (1500 - 9600) |
| Adults aged 15 and over living newly infected with HIV | 4100 (12000 - 8600) |
| HIV incidence per 1000 population adults 15 - 49 | 0.22 (0.07 – 0.45) |
| Adults and child deaths due to AIDS | 2600 (1700 - 4200) |
| Deaths due to AIDS among adults aged 15 and over | 2300 (1500 - 3700) |
1-2 Problem statement:
Acquired immune deficiency syndrome (AIDs) is becoming a serious worldwide problem. African countries, including Sudan, have the highest prevalence and incidence rates of the disease.

AIDs is a preventable and controllable disease. It is one of the emerging diseases and is becoming more serious. The AIDs and other STIs are often more common in people from poor and low socio-economic communities. Statistics (figures) about AIDs are not reliable and rather defective and the reasons behind that may be due to e.g., lack of health education programs about the disease, most of the people are reluctant to attend the AIDs centers for voluntary investigation, women are more forced to sell sex to earn precious money for food, basic needs, and to raise their children. People in poor living conditions often do not have easy access to health care services. STIs often go untreated and spread more easily. Poor education and low literacy to keep people ignorant of the ways and means to avoid disease like AIDS are a few to mention.

The purpose of this study to assess the knowledge, attitude, and practice of a group of females at the group (15-49) towards HIV/AIDs and come out with a number of recommendations, in the hope that they participate in paving the way for health care givers (government or private) for putting appropriate plans for proper control and prevention of the disease in Sudan.
1.3 Objectives:

1.3.1 General objective:
To assess the knowledge, attitude and practice of HIV/AIDS among Females in reproductive age (15-49).

1.3.2 The Specific objectives:
- To determine the knowledge, attitude and practice of female in reproductive age (15-49) towards mode of transmission of HIV/AIDS.
- To assess the community participation towards HIV/AIDS control among women in reproductive age (15-49).
- To identify the attitude regarding preventive measures. Such as use of condom, avoiding illegal sex and avoiding sharping share instrument.
- To assess the knowledge, attitude of these women towards people with HIV.
- The identify level of stigma towards people living with HIV among them.
Chapter Two

Literature Review

2.1 Definition.

AIDS can be defined generally as the occurrence of clinical illness consisting of opportunistic infection (such as pneumocystis’’ Carinii pneumonia and or neoplasias such as Kaposi’s sarcoma associated with immunodeficiency and caused by the human immunodeficiency virus. In 1982 for surveillance and reporting purpose, the center for disease control (CDC) developed case definition for AIDS in children and adults. At that time the etiologic agent of AIDS was un -known, a case of AIDS as a disease at least moderately predictive of a defect in cell mediated immunity occurring in person with un known cause for diminished resistance to that disease. such diseases includes Kaposi’s Sarcoma (in patients under 60 years of age) lymphoma limited to the brain, pneumocystis Carinii pneumonia, and serious opportunistic infections. Diagnoses were considered to fit the case definition only if based on sufficiently reliable methods such as histology or culture. The opportunistic infection listed at that time includes pneumonia, meningitis or encephalitis due to one or more of . The following: Aspergillosis, candidiasis Cryptococcus, cytomegalovirus, toxoplasmosis, Typical Mycobacteriosis (excluding TB and leprosy). Other opportunistic disease included were progressive Multifocaleukoencephalopathy, esophagi is due to candidiasis, cytomegalovirus, herpes simplex virus. IN 1985 the case definition of AIDS used for national reporting was expanded. Effective within reporting as of September 1, 1978, CDC again revised and expanded the surveillance case definition for AIDS (Revision of the CDC surveillance, 1987).
This revision was made in order to:

A. Track more effectively the severe disability morbidity with infection with HIV.
B. Simplify reporting of AIDS cases.
C. Increase the sensitivity and specificity of the definition and be consistent with current diagnostic practice. The CDC definition did not adequately address difference seen in Africa \(^1\) (Luo et al., 2008)

HIV/ AIDS is fatal illness caused by a retrovirus known as human Immune deficiency virus (HIV) which breaks down the body’s immune system, leaving the victim vulnerable to a host of life-threatening opportunistic infections.

(Halperin and Epstein, 2004)

The etiologic agent of AIDS is the human immunodeficiency virus, which is currently known to have at least two subtypes, type 1 and type 2 (HIV-1 - HIV-2)

HIV-1 is responsible for most of the AIDS cases in the world at this time, except in West Africa, where HIV-2 is prevalent. (Luo et al., 2008) WHO has established a definition for AIDS in Africa presented in the:

2.1.1 WHO case definition of adult AIDS in Africa

**Major signs for WHO case definition:**

1. Weight loss $>10\%$ of body weight.
2. Chronic diarrhea $>1$ month.
3. Fever $>1$ month intermittent or constant.

**Minor signs**

1. Persistent cough $>1$ month.
2. General Pruritic dermatitis.
3. Recurrent herpes zoster.
4. Or pharyngeal candidiasis.
5. Chronic progressive and disseminated herpes simplex infection.
AIDS in an adult is diagnosed if at least 2 major and 1 minor signs are present in the absence of known cause of immunosuppressant such as cancer or severe malnutrition Source : world health organization 1986, 69 -73(Luo et al., 2008)

The presence of generalized Kaposi sarcoma or Cryptococcus meningitis is sufficient by themselves for the diagnosis of AIDS.

(Halperin and Epstein, 2004) Tuberculosis is widely recognized as the commonest opportunistic disease associated with HIV in Africa. But because TB causes wasting, cough and associated with fever in most patients, The AIDS clinical case definition cannot reliably distinguish between HIV-positive and HIV-negative in TB patients. IN the Absence of another cause of immune deficiency and without laboratory evidence of HIV infection (if the patient has not been tested or the results are inconclusive), certain diseases when definitely diagnosed are indicative of AIDS . The clinical case definition was developed to enable reporting of the number of people with AIDS for the purpose of public health surveillance, rather than for patient care’(Halperin and Epstein, 2004)

2.2. Incubation period:
This is the period when the patient is completely asymptomatic and may vary from a few months to a more than 10 years. The median incubation period is 8-10 years. Children tend to have a shorter incubation period at the end of the incubation period, a number of signs and symptoms may appear which do not fulfill the definition of AIDS or other HIV-associated syndromes. These include slight immunological, dermatological, hematological and neurological signs. Constitutional symptoms, such as fever, weight loss, night sweats, and diarrhea may develop generalized lymphadenopathy may be seen. Laboratory findings may show a decrease in the CD4 count, hyperimmunoglobulinaemia and cytopenias. The lymphadenopathy syndrome is defined as the enlargement of lymph nodes to 1 cm or more at 2 or more body regions which persists for more than months without any other recognizable cause other than HIV infection AIDS-related complex is defined as fever, weight loss, night sweats, or chronic diarrhea of more than 1 month’s duration in the presence. Of disturbances of CMV and in the
absence of any other recognizable cause other than HIV infection. These definitions may be in part overlapping are not mutually exclusive and they can be described generally as pre-AIDS. (Lu et al., 2004)

2.3. HIV/AIDS MEDICAL SYMPTOMS and IMPACTS

The WHO has developed other criteria for diagnosing symptomatic HIV infection, as on AIDS case definition, are more invasive tests. It is based on a history and physical examination of patient. Many of the symptoms are not specific to HIV illness, because other disease can cause the same manifestation it is the persistence and unexplained nature of the symptoms that should prompt suspicion of underlying HIV infection, the criteria include:

- One or more cardinal findings.
- Two or more characteristic findings.
- One characteristic finding and two or more associated findings.
- Three or more associated findings, together with any risk factors (found by taking case history).
- Two associated finding with a positive HIV test result.

**Cardinal Findings:**
- Kaposi sarcoma (lesion in the mouth, or generalized rapidly aggressive).
- Esophageal candidiasis.
- Cytomegalovirus retinitis.
- Pneumocystis carinii reminisce.
- Toxoplasma encephalitis.

**Characteristic findings:**
- Oral thrush (in patient not taking antibiotics).
- Hairy leukoplakia.
- Cryptococcal meningitis.
- Herpes zoster or shingles - present or past especially if the patient is not elderly.
- Sever purring.
- Kaposi sarcoma - different from the cardinal types.
High grade B - cell extra nodal lymphoma.
Tumors or lymph cell located in the gut or CNS.

**Associated Finding:**
- Recent and I or unexplained weight loss of more than 10% of the body weight.
- Fever (continuous or intermittent) for more than one month.
- Diarrhea (continuous or intermittent) for more than one month.
- Ulcers (genital or around the anus) for more than one month.
- Cough for more than one month.
- Neurological complaints or findings, including seizures, peripheral neuropathy, dementia, progressively worsening headache.
- Generalized lymphadenopathy.
- Drug reaction (previously not seen).

- Sever or recurrent skin infection (Luo et al., 2008)

**2.3.1 Possible Risk Factors:**
- Present or past high - risk behavior.
- Unprotected penetrative and/or vaginal sex with Sex partners.
- Drug injection with shared syringes and needles.
- Sex partners with known AIDS or HIV infection.
- Sex partners of someone with a known risk factor.
- Recent history of an STI particularly genital ulcer disease.
- History of unscreened blood and other transfusion from an area with high prevalence of the disease, even if screened.
- History of scarification, tattooing, ear piercing or circumcision using non sterile instruments. (Halperin and Epstein, 2004)

**2.3.2. Impacts of AIDS:**
- The AIDS epidemic is devastating as it has a profound impact on growth, income and poverty, AIDS is direct result of falling annual perceptual growth in half the countries of sub-Saharan Africa, many countries with heavy burden of disease are threatened with substantial losses in growth domestic
products (GDP) and increasing costs of training benefits and absenteeism due to the illness (Piot and Bartos, 2002)

- The AIDS epidemic is likely to increase impoverishment as it worsens the existing social and economic injustices.
- The HIV/AIDS causes suffering of adults and children and high costs of care make many households vulnerable to economic impact, but the poor one may be in capacitiated. Typically this impoverished majority has limited access to social and health services, especially in countries where public services have been cut back.
- Statistics of the developing countries show that the epidemic is claiming huge numbers of teachers, doctors, extensions workers and other human resources. In some countries data reported showed that the health care systems are losing up to a quarter of their personnel to the epidemic. In addition students and teachers affected by disease die or leave schools. This affects regularly the quality and efficiency of educational system. Losing skilled professionals, especially in low-income countries reduces capacities of social services and raises the costs of recruitment, training, benefits and replacements and this to the opportunities of development (Piot and Bartos, 2002)

- In early 1990’s the epidemic has been known as striking population with different intensities but then the dynamics of the situation show that the poor are more vulnerable and women being poorer have great vulnerability.
- The early trends also show that the impact on skilled and more educated has had significant economic implications. It is apparent that the HIV/AIDS threatens the whole process of development and its prospects as it particularly attacks the men and women in age group 20-45, who is the back bone of remain force.

2.4. Historical Background:

Clues from epidemiological surveillance first suggested that AIDS was caused by a transmissible agent. These include the following:

1- The AIDS epidemic was old.
It appeared First in limited geographic areas and then spread.

The initial groups of people affected (homosexual men and intravenous drug users) and later identified group’s hemophiliacs and blood transfusion recipes were prone to communicable disease but were socially, economically, and geographically spread.

Clustering of cases suggested common links and contacts. Early patterns of the distribution of affected person were reminiscent of hepatitis B.

- several lines of thinking began to implicate a retrovirus particularly one similar to human T-cell lymph tropic viruses (HTLV), which are also known as human T-cell which are also known as humans T-cell leukemia viruses (HTLV-I) cause adult T-cell leukemia in humans. These included the knowledge that:
  1. T-4 lymphocytes were selectively depleted in AIDS.
  2. HTLV could be transmitted by intimate contact or blood products.
  3. HTLV could cause immunosuppressant.
  4. The retrovirus known as the feline leukemia virus could cause a type of cancer (leukemia) as well as immunosuppressant leading to opportunistic infection.
  5. There was a high incidence of AIDS among Haitians and.

- .Africans. (both Haiti and Africa are endemic areas for HTLV-1) Later assay of AIDS patients showed that they had evidence of exposure to a HTLV-1 related virus (Luo et al., 2008)

2. 5 ORIGIN OF HIV and AIDs

First focused on Africa as a possible site of origin for ADIS because:

1. Other recent, sever viral illnesses have first been recognized in Africa.
2. Kaposi sarcoma has its highest incidence in equatorial Africa.
3. in Europe 22% of patients with AIDs were from sub Saharan Africa.
4. Has been postulated that HIV has crossed the host species barrier and is spreading as a (virgin soil) epidemic. Such as virus may be harmless to its Natural host but highly lethal to its new host. Various lines of evidence suggested that the natural host may be the Africa green monkey. Recent
isolation of chimpanzee lentil virus isolate (SIV epz). Show it to be more closely related to HIV than other previously isolated primate ant viruses. Other animal viruses that are blood-borne and have crossed to man in recent years including those that cause Lassa fever, Marburg disease, and Ebola hemorrhagic fever.

Researchers have been interested in determining HIV / AIDS had made an appearance before the outbreak of the epidemic.

Two major theories of HIV-1 origin remain most likely:

- HIV has always been present in human population some form but has gone unrecognized because of low prevalence or confinement to isolated.
- HIV-1 entered human population by viral transmission from another animal species in relatively recent. History (Luo et al., 2008)

2.6 Mechanism of HIV infection:

The fact that HIV is a retrovirus suggested persistence of the infection that may be lifelong. HIV is an RNA virus whose primary attachment.

- Site in the CD receptor, which found on T-lymphocytes as well as other cell including macrophage and CNS cells.
- The virus reduce the number of T4 lymphocytes, thus resulting of a reversed helper/suppressor - T4/T8 ratio.
- HIV attaches to receptors on T4 lymphocytes and other cells primarily via the CD4 receptor and enter the cell. These cells lacking the CD4 molecule can also be infected by HIV and that Co infection by other viruses such as HTLV facilitates this process. (Luo et al., 2008)
- An enzyme reverse transcriptase, transcribes the genetic code on the RNA of the virus into DNA. The viral DNA integrated into the host cells, chromosomes.
- The virus may remain in the host cells without the viral genes being expressed and with little or no viral proteins being made.
The virus can be latent with little, or perhaps no, circulating virus present, and the immune system does not recognize infected cells and eliminate them.

Normal cell activation in response to antigens appears to lead to expression of the viral genes by transcription and translation of the genes into viral proteins then assembled into new viral particles in the cytoplasm of the cells and that are released when the cell divides.

These viral particles can then infect new cells.

The old infected cell usually dies. The immune system is eventually crippled by the T4 cell loss and other derangements.

In addition, HIV has the capacity to evade immune system by changing its genetic makeup over time.

Autoimmune Mechanism may be Activated by HIV and virus mediated cell fusion many involve uninfected cells (Luo *et al.*, 2008)

The presence of certain opportunistic disease and arrange of the extent of depletion in immune function correlates with the loss of CD4+helperT- cell. However there is also dysfunction of dendritic cells damage to the thymus and immune dysregulation associated with production of auto antibodies and immune complexes with persistent complement activation functional impairment of CD4+lymphocytes results in disorders of antibody production delayed hypersensitivity and macrophage function, in addition secondary immune deficiency occurs in the gut with depletion of IGA containing jujinal and rectal plasma cells. This results in a vulnerability to many opportunistic infections, an increased risk in nutrient assumption and metabolism. The virus also lends to reach certain brain cells. This leads to so called neuropsychiatric abnormalities or psychological disturbances caused by physical damage to nerve cells (Piot and Bartos, 2002)

Following infection by the HIV-1 virus into the blood there is a brief seroconversion illness which is characterized by flu-like symptoms e.g. fever, diarrhea, and weight loss and lymph adenopathy. There then follows a latent
period when the infected subject remains well but which is associated with a progressive fall in CD4 + lymphocytes count.

2.7. Transmission:

HIV has been isolated from a variety of body fluids, cells, and tissues including peripheral blood, lymph nodes, brain tissue, cerebrospinal fluid, tears, bone marrow, cell-free plasma, saliva, retina, cornea, ear secretion, bronchial fluid, semen, breast milk, cervical cell, Langerhans cells, mucous membranes, synovial fluid, cervical and vaginal secretion. The importance of these fluids, cell, and tissues in transmission varies as does the concentration of HIV without them:

1. The major documented ways that HIV may be transmitted are by intimate sexual contact both homosexual and heterosexual with an HIV infected person.
2. Exposure to contaminated blood or blood product by transfusion.
3. Sharing of drug apparatus or other methods.

1. Through passage of virus from infected mother to their fetus or new born in utero during labor or delivery (Luo et al., 2008)

2.7.1. Sexual Transmission

Sexual transmission of HIV in the United States has mainly occurred between homosexual males.

Sexual transmission of HIV mainly occurs between males and female. HIV may be transmitted during heterosexual or homosexual, rape, and some have proposed mandatory testing (with counseling) of both victim and assailant.

Transmission by oral sex has also been described. There have been increased rates of HIV infection among children who had risk factors other than sexual abuse. (Luo et al., 2008)

2.7.2. Blood Borne Transmission: Transmission of HIV by exposure to contaminated blood or blood products occurs mainly through transfusion from an infected donor to someone requiring blood because of temporary illness or surgery.
or chronic illness as hemophilia or dialysis or through sharing of needles or other drug related apparatus especially among intravenous drug users.

- Injury from needles and sharp objects to health care workers fall in this category of transmission.

2. As do contaminated needles and equipment used for therapeutic purposes (Luo et al., 2008)

2.7.3. Perinatal Transmission

- Vertical transmission of HIV from an infected mother to her fetus or child in the perinatal period is the third Major transmission mode of.
- HIV has been isolated from fetal tissue amniotic fluid and HIV-associated dimorphic syndrome.
- In utero infection could occur from Tran’s placental transmission of HIV or of HIV-infected maternal lymphocytes.
- Around the time of delivery transmission is thought to take place due to contact with infected maternal blood and tissue.

3. Post-delivery, breast feeding has been implicated in transmission (Luo et al., 2008)

2.7.4. Other Modes

1. The presence of HIV in body fluid such as saliva and tears has caused Concern among the public about the possibility of other mode of the transmission such as Kissing Shaking hand, spread by food handler and other casual contact, for non sexual contacts of AIDs patients or person infected with HIV the Risk for Acquiring infection appears very low or NON existent (Luo et al., 2008)

2.8. EPIDEMIOLOGY

- The acquired immune deficiency syndrome (AIDS) was first described as a clinical entity in 1981 and HIV was identified as the causative organism in 1983.
In December 1997 the World Health Organization (WHO) estimated that 29 million adult and 1.5 million children were already infected. And worldwide up to 16,000 new infections occur daily.

Patterns of spread have varied greatly with in different regions influenced by social, behavioral, cultural, and political factors. WHO long-term projections estimate a cumulative total of over 40 million infections by the year 2000.

HIV infection is predominantly concentrated in developing countries in people in early adult life.

Worldwide, heterosexual intercourse accounts for the vast majority of infection and co-existing STIs, especially those causing genital ulceration.

Homosexual transmission accounts for the majority of infections seen in the U.K., but there's now an increasing rate of heterosexual transmission in developed countries (particularly in urban populations). Up to 18% of the infections in Europe are thought to be heterosexual acquired.

In central and sub-Saharan Africa the epidemic has always been heterosexual in south East Asia and the Indian Subcontinent are still in the early phases of possible explosive epidemic.

2.8.1 HIV epidemic worldwide: Global situation of HIV/AIDS:


Number of people living with HIVI AIDS: Total 25 millions.

AIDS deaths in 2010: total 3.1 million. Adult’s 2.5 million, women 1.2 millions, children less than 15 years 610,000. UNAIDS and WHO now estimate that the number of people living with HIV or AIDS at the end of 2013 stands at 35 million. This is more than 50% higher than what WHO’s Global program on AIDS projected in 1991 on the basis of data then available (AIDS and Organization, 2002).

2.8.2 The worldwide distribution:

1- Asia and the Pacific: Almost million of people in Asia and the Pacific acquired HIV in 2013 bringing to an estimated 4.8 million the number
of people now living with the virus - 10% increase since 2003. Further 250,000 people are estimated to have died AIDS in the past years. About 0.2% young people (aged 15 -24 ) are living with HIV (Aids and Organization, 2002)

2. Eastern Europe and Central Africa :- The unfortunate distinction of having the world’s fastest growing HIV/AIDS, epidemic still belonged to Eastern Europe and Central Asia in 2013 there were an number of people living with HIV/AIDS about 1.1 million (Aids and Organization, 2002)

3. Sub-Saharan Africa:- By far the worst affected region, sub - Saharan Africa is now home to 24 million people living with HIV /AIDS. Approximately 1.5 million new infections occurred there in 2013, 4-7 million young people (aged 15 -24) (Aids and Organization, 2002)

4. Latin America and the Caribbean: An estimated 1 -2 million adults and children are living with HIV in this region in 2013, the newly affected about 150,000(Aids and Organization, 2002)


The first case of AIDS in Sudan was diagnosed in 1986. Since then the number of annually reported cases is dramatically increasing. By the end of 2015. 2687 cases were reported. General population HIV prevalence rate is about 0.24%.

Prevalence among: -

TB patients 1.6%
Prostitute 4.4%
Refuge 4.0%
Street children 2.3%
Tea seller 2.5%
Those in persons 2%
Student 1.5% (Halperin and Epstein, 2004))Pregnant women, Track driver have the same percent 1% Estimation of HIV positive person by the end of 2003,
600,000. sexual mode of transmission account for 95.5 % of cases and prenatal transmission for 2% most of AIDs cases occur in age group 15 - 49 years, an in males more than females 3: 1 (Aids and Organization, 2002)

2.9. SUDAN NATIONAL POLICY AND GUIDELINES ON HIV /AIDS &STIs CONTROL

The policy envisaged the following guidelines:

1- Strong political commitment and leading at all level.
2- Effective and efficient inter-sector performance in the fight against HIV/AIDS.
3- Responsible and powerful strategy initiative to involve commitment.
4- Preserving the human right and dignity of the infected and affected persons.
5- Adoption of legal framework in conformity with international standards and best practice.
6- Ensuring empowerment of PLWAs to take a proactive role in the fight against HIV/AIDS.
7- Targeting the youth empowering them with proper knowledge and preventive measures as well as accessibility to service.
8- Ensure HIV/AIDS polices and strategies that are gender sensitive.

9- Realization of the critical role of the epidemiological and behavioral research in analyzing the situation and monitoring the trends of the epidemic as well as setting of knowledge based intervention.

10 - Extensive and wide spread awareness - raising messages using different media channel.

11 - Fighting all types of stigma and discrimination in the fight against HIV/AIDS.

12 - Realizing Sudan content and the huge potential of the enabling spiritual and socio-cultural values that can be integrated with modern proven scientific knowledge, the interfaith groups will play a lead role in the fight against HIV/AIDS.
13. Evolving the national policy statement on HIV/AIDS to lay the foundation for a coherent, dynamic and well co-ordination national HIV/AIDS prevention and control program in Sudan.

2.9.1. Objectives: The republic of Sudan will adopt the following objectives & strategies for prevention and control of HIV/AIDS. Prevention of HIV infection through one; prevention of sexual transmission Two; prevention of blood & blood product transmission Thee; prevention of prenatal transmission.

2.9.2. Mitigate the personal and social impact of HIV/AIDS by;
One: providing care, clinical management and counseling for infected and affected Two: providing social and economic support for patients and their families. Three; reduction of socio-economic impact of HIV/AIDS on the community.

The policy had not put a chapter on directions or guidelines for youth & adolescence. These should be clearly stated in the policy on youth and student:

- Ensure that all youth and students will have ready access to HIV information and education.
- Young people and particularly those at risk for HIV/AIDS should be provided with counseling and other services.
- Youth and students associations should assume major responsibility in dissemination of HIV/AIDS awareness and preventive information and activities among their members and community at large.

There are guidelines for MTCT including the period of lactation. The policy is to include directions or guidelines for the families to protect their children from getting infected with HIV/AIDS especially the period during of delinquency. (SLINDE, 2003)

2.10. VIROLOGY: The classification

Family: Retroviridae

Subfamily: Lentivirinae

Types: HIV - 1, HIV -2
HIV-1: has ten genotypes depending on the env gene: A - J.

HIV-2: has ten genotypes depending on the env gene: A - E.

2.10.1 HIV particles: HIV-1 virions comprise a nucleoprotein core surrounded by a lipid bilayer containing the viral surface and transmembrane env proteins. Contains viral determinants that bind to host-cell surface receptors. GP 41 contains an N-terminal hydrophobic domain, which is thought to initiate the process of virus-cell membrane fusion, and also transmembrane and cytoplasmic tail domains that anchor env in the viral lipid bilayer. The nucleoprotein core of the virions comprises two copies of viral genomic RNA and associated tRNA molecules, along with mature gag and pol products. The matrix (MA) gag protein is believed to be associated with the inner leaflet of the lipid bilayer, the capsid (CA) gag protein forms structural core of the viral nucleoprotein complex and the nucleocapsid (NC) gag protein selectively binds viral genomic RNA. The mature Pol proteins are the virus-associated enzymes PR, RT, and IN. HIV-1 particles also contain the viral proteins Vpr (incorporated by its interaction with the p6 Gag protein, and Vif. (10, 11, 12, 13). It has also been proposed that the viral Nef protein is incorporated by HIV-1 particles. The host cell protein cyclophilin A is incorporated into HIV-1 particles by an interaction with the CA protein and important for productive viral replication. (14, 15, 16, 17)

2.10.2 The HIV-1 Genome: The integrated form of HIV-1, also known as the provirus, is approximately 9.8 kilobases in length (Raviglione, Narain and Kochi, 1992). Both ends of the provirus are flanked by a repeated sequence known as the long terminal repeats (LTRs). The genes of HIV are located in the central region of the proviral DNA and encode at least nine proteins (Paxton, Connor and Landau, 1993). These proteins are divided into three classes:

- The major structural proteins, Gag, Pol, and Env.
- The regulatory proteins Tat and Rev.
- The accessory proteins, Vpu, Vpr, Vif and Nef.
2.11. THE REPLICATION OF HIV: The replication cycle is as follows: The first step of infection is the binding of gp 120 to the CD4 receptor of the cell which is followed by the v fusion of the virus and cell membrane and is mediated by the gp41 molecule. The virus then penetrates into the cell and uncoating, reverse transcription,

1. Provirus synthesis and integration takes place. This is followed by the synthesis and maturation of virus progeny. During 1996 members of the seven-trans membrane spanning receptor family of chemokine receptors were proved to be the necessary co-receptors for HIV-1 entry These receptors were CACR4 (fusing) for T-cell line (T) - tropic strains and ( principally ) CCR5 for macrophage (M) - tropic strains . It is important to note that both M- and T-tropic viruses replicate in primary CD$^+$ positive T cells despite the confusing nomenclature, which will soon be revised (Luo et al., 2008)

2.12. Opportunistic Infections:

2.12.1. Protozoal: Pneumocystis carinii (now thought to be a fungi).

Toxoplasmosis of the brain.

Cryptosporidiosis with diarrhea.

2.12.2. Fungal: Candidiasis (esophagus, trachea, lungs).

Cryptococcus, extra pulmonary histoplasmosis coccidiodomycosis.

2.12.3. Bacterial

- Mycobacterium avium complex.
- Atypical mycobacterial disease.
- Extralumonary TB.
- Salmonella septicemia.
- Multiple or recurrent pyogenic bacterial infection.
2.12.4. Viral

- CMV
- HSV
- VZV
- PML

Opportunistic infections by protozoa, fungi, bacteria and viruses are seen in patients with Aids. Pneumonia caused by Pneumocystis carinii is the most frequent opportunistic infection in ADIS patients in N. America and Western Europe. The typical symptoms are shortness of breath on exertion, dry cough and fever. Diagnosis requires bronchoscopy and the demonstration of Pneumocystis in the lavage fluid. Pentamidine and co-trimoxazol are the treatment of choice. Toxoplasmosis is particularly relevant because it causes CNC disease. It can be treated by a combination of pyrimethamine and a sulfonamide. Cryptosporidium frequently causes intractable diarrhea for which no therapy is available. Candida Albicans is the second most frequent opportunistic infection in AIDS patients. Thrush of the oral cavity is frequently seen in patients with pre-AIDS Candidiasis of the esophagus is a CDC criterion defining AIDS. Therapy is relatively simple with amphomoronal solution or ketaconazol tablets. Of further clinical importance is infection with the fungus cryptococcus neoformans which, if untreated, is fatal in all cases. Early diagnosis may be made by the demonstration of the fungus or fungal antigen in CSF (SLINDE, 2003)

2.13. EFFECT OF HIV INFECTION

Tumours:- The most frequent opportunistic tumor, Kaposi’s sarcoma, is observed in 20% of patients with AIDS. For unknown reasons, KS is observed mostly in homosexuals and its relative incidence is declining. KS is a vascular tumor in its characteristic form is readily identifiable. In 30 to 40% of patients, the mucosal membrane, most frequently the oral cavity and the larynx, and the internal organs, most frequently the esophagus, the stomach and the intestines are affected. In most case, no treatment is required. Excision, local treatment with vincristine or
laser irradiation are the mainstay of palliative therapy. Malignant lymphomas of HIV-infected patients differ from other known lymphomas by their localization, degree of malignancy, and response to therapy. HIV-associated lymphomas are frequently found outside the lymphatic system, particularly in the brain, bone marrow, GI tract, and skin. Their response to therapy is much poorer than that of classical lymphomas. The pathogenesis of KS and HIV-associated lymphomas are uncertain.

- In the case of lymphomas, at least a certain proportion appears to be associated with EBV (SLINDE, 2003)

**Neurological manifestations:**

A high percentage of HIV-infected patients shows neurological changes that are not explained by opportunistic infections or tumors. The spectrum of symptoms ranges from slight neuropsychological abnormalities (disturbances of memory, mood and behavior) to organic psychosis and complete dementia in almost all cases a continuous deterioration is observed. The most frequent neurological disorder is sub-acute encephalitis (AIDS encephalopathy, AIDS dementia complex) which is seen in two thirds of cases. Other clinical manifestations may be seen, such as acute meningoencephalitis, aseptic meningitis and peripheral neuropathy (SLINDE, 2003)

**Dermatological Manifestations:** In all stages of HIV infection, characteristic skin manifestations may be observed which frequently may be the first symptoms which lead the patient to seek medical attention. HIV specific conditions include oral hairy leukoplakia and an itching maculopapular eruption. Seborrhoeic Eczema occur in 70% of AIDS patients and allergic exanthemas and acne like eruptions are also very common. Viral induced skin eruptions are also frequently seen, such as herpes zoster, cobdylomataacuminatum, verruca vulgaris, molluscumcontagiosum (SLINDE, 2003)

**Gastrointestinal Manifestations:**

Persistent diarrhea which may be copious volume is a frequent problem among these patients. Giardia lamblia, Entamoebahistolytica, Shigella, Salmonella and Campylobacter all cause symptomatic disease. However, appropriate treatment does not always eliminate the watery diarrhea. Cryptosporidium, CMV, M. avium
intracellular or Kaposi’s sarcoma may also be associated with diarrhea. It had also been suggested that HIV itself may be enteropathic through infection of the mucosal cells and or through attacking the autonomic nervous supply to the gut. (SLINDE, 2003)

**Manifestation in children and during pregnancy:**

In children, the clinical spectrum of HIV infection differs from that observed in adults. The typical opportunistic infections of adults are less frequent and bacterial infections predominate. In about 50% of children, pneumonia is observed which is called lymphoid interstitial pneumonia. It had been suggested that this pneumonia is directly caused by HIV. In addition, failure to thrive, weights loss and neurological symptoms are seen. HIV transmission to the fetus has been observed as the 15th week of pregnancy. Prenatal infection may cases a HIV specific embryopathy in the majority of infected children, this is characterized by a small forehead, short flat nose, microcephaly, thick lips and hypertelorism. The numbers of newborns infected by their mothers have been rising steadily. The transmission rate from mother to newborn is estimated at one-third. There is also evidence to suggest that pregnancy also favors the progression of the HIV disease in the mother. The maternal-fetal transmission rate varies geographically from around 15% in Western Europe to up to 50% in Africa. It appears the most important determinant is the virus load present in the mother (Luo et al., 2008)

**2.14. Complication OF HIV INFECTION:**

**Hematological Complication**

- Anemia, Neutropenia and Thrombocytopenia are all common in advanced HIV infection.
- Under lying opportunistic infection OR Malignancies are frequently associated with pancytopenia disseminated cytomegalovirus and lymphoma.

**Renal Complication:** HIV - associated Nephropathy (HIV/AN) Can cause significant renal important in more advance disease mostly in black male patient and appear to be exacerbated by heroin we.
**Respiratory Complication:** The upper airway and lungs serve as a physical barrier to airborne pathogens and any damage will decrease the efficiency of protection leading to an increase in upper and lower respiratory tract infection. The patient presents with dyspnea, and dry cough, reticular nodular shadowing is seen on chest X-Ray.

**Endocrine Complication:** Varies endocrine abnormalities on HIV including reduced level of testosterone and abnormal adrenal function. Latter on may precipitate clear adrenal insufficiency.

**Cardiac Complication:** Cardiac Myopathy associated with HIV may lead to congestive Cardiac failure- Myocarditis has been described.

**Eye disease:** Eye pathology is a regular finding in HIV infection, usually in later stages. The most serious is cytomegalovirus retinitis (Bhattacharya, 2004)

**2.15. LABORATORY DIAGNOSIS:**

1/ **Serology** :- the diagnosis of HIV infection is usually based on serological tests. ELISAS are the most frequently used method for screening of blood samples for HIV antibody. The sensitivity and specificity of the presently available commercial systems approaches 100% but false positive and false negative reactions occur. Other test systems available include passive particle agglutination, immunofluorescence, Western blots and RIPA Bioassays. Western blots are regarded as the gold standard and seropositivity is diagnosed when antibodies against both the env and the gag proteins are detected. The sensitivity of the test systems are currently being improved by the use of recombinant antigens (SLINDE, 2003)

2/ **Antigen tests** :- HIV antigen can be detected early in the course of HIV infection before the appearance of antibody. It is undetectable during the latent period (antigen - antibody complexes are present) but become detectable during the final stages of the infection. It was argued that the routine use of antigen screening test in the blood transfusion service may result in earlier cases of HIV Infection being identified. However a large scale study carried out in the US failed to show any benefit.
3/Virus isolation: Virus isolation is accomplished by the cultivation of the patient’s lymphocytes with fresh peripheral blood cells of healthy donors or with suitable culture lines such as T-lymphomas. The presence of the virus can be confirmed by reverse transcriptase assays, serological tests, or by change in growth pattern of the indicator cells. However, virus isolation is tedious and time consuming (weeks) and is successful in only 70 to 90% of cases. Therefore, virus isolation is mainly used for the characterization of the virus (SLINDE, 2003).

4/ Demonstration of viral DNA: This can be accomplished by probes or by PCR techniques; the latter may be useful because of its extremely high sensitivity.

5/ Prognostic Test: The following may be useful as prognostic tests: (1) HIV antigen, (2) Serial CD4 counts, (3) Neopterin, (4) B2macroglobulin, (5) Viral load. Of these tests, only serial CD4 counts and HIV viral load are still routinely used (SLINDE, 2003).

6/ HIV viral load: It appears that HIV viral load has the greatest prognostic value. HIV viral load in serum may be measured by assays which detect HIV-RNA e.g. RT-PCR, NASBA, or B DNA. HIV viral load has now been established as having good prognostic value, and in monitoring response to antiviral chemotherapy. Patients with a low viral load during the incubation period had a better prognosis than those with a high viral load. Patients whose viral load decreased significantly following the commencement of antiviral therapy had a better prognosis than those who did not respond. Among patients who responded to antiviral therapy, those who had a low pre-treatment viral load had a better prognosis than those who had a high pre-treatment viral load.

7/ CD4 counts: Despite the increasing use of HIV-RNA assays, measurement of CD4 still has important value in monitoring progression and response to antiviral chemotherapy. Whereas CD4 count gives an indication of the stage of disease, “The measurement of HIV viral load tells us where the disease is going, whereas CD4 count tells us where the disease is at this moment” (SLINDE, 2003).

8/ Antiviral susceptibility assays:-
Because of the increasing range of anti-HIV agents available there is increasing pressure on the provision of antiviral susceptibility assays. There are two types of antiviral susceptibility assays: phenotypic and genotypic assays. Phenotypic assays define whether a particular strain of virus is sensitive or resistant to an antiviral agent by determining the concentration of the drug needed to inhibit the growth of virus in vitro. e.g. Plaque-reduction assays for HSV, plaque-reduction be cultivated Moreover, in the case of HIV, plaque reduction assays may not be that appropriate since not all HIV strains produce plaques in cell culture. (SLINDE, 2003)

2.16. TREATMENT:-

4. Despite the introduction of new antiretroviral agents there is no cure for HIV and AIDS. Therefore, the patient must live with a chronic progressive, infectious unpredictable condition. The aim of management in HIV infection is to maintain physical & mental health to avoid transmission of the virus and provide appropriate palliative support as need. Psychological supports are needed not only for the patient but also for family, friend and cares. Dietary assessment and advice should be freely accessible clear advice on reducing the risk of transmission must be provided and future sexual practices should be discussed. Also information should be provided to make the choice of child bearing. (Luo et al., 2008)

Antiretroviral Drugs :- The principal aim of antiretroviral therapy is to suppress viral replication to as low a level as possible for as long as possible - inhibitors of HIV reverse transcriptase and HIV protease are so far the most developed Antiretroviral drugs include the following.

Nucleoside - Analogue Reverse - Transcriptase Inhibitor: They Inhibitor reverse transcripts and also act as a DNA chainTerminator.

Zidovudine: (AZT): Is well absorbed with high bioavailability and penetrates the blood - brain barrier adverse effects include: GIT discomfort, headache, and insomnia but resolve after several weeks of therapy. Megaloblastic change is usual. Regiment range from 500 to 1000 m orally daily in divided doses.
**Didanosine (DDI)**: Is nucleosides analogue of insane which has a potent anti HIV effect it is unable in acid. Side effects include nausea, diarrhea, pancreatitis and polyneuropathy. The standard dose is 200mg twice daily.

**Zalcitabine (DDC)**: Have similar effects as (DDI). The usual dose is 0.75 mg 3 times daily.

**Lamivudine**: Has potent activity on HIV-1 and HIV-2, acting as chain terminator of reverse transcripts. It also inhibits hepatitis B DNA replication the dose is 150 mg twice daily without restriction on food.

**Stavudine (D4T)**: Exhibit a good anti-HIV effect with a good bioavailability and good penetration of CNS. The usual dose is twice daily.

**NON-Nucleoside Reverse-Transcriptase inhibitors (NNRTIs)**:

NNRTIS bind to and inhibit the reverse transcriptase of HIV but ineffective against HIV-2 the major drug in this group is:

**Nevirapine**: Has a high bioavailability, a long half-life and wide tissue distributions include: the CNS, Major toxicity, Elevation of liver enzymes. Dose is 200mg once daily increase to 200 mg twice a day after the first month.

**Protease Inhibitors**: They ate competitively on the HIV aspartic protease enzyme this group includes sequinavir, Indinavir, Ritonavir and Netffinavir.

**Antiretroviral Drug Therapy in practice**: On starting therapy, the philosophy is of (hit early and hit hard) It is based on the rapid viral turnover. Therapeutics decision - making in general is a combination of clinical assessment and laboratory marker data, includable viral load and CD4 counts. Indication to consider initiation of antiretroviral there in patients wishing to be treated is any of the following:

- Symptomatic HIV disease.
- CD4 cont. garter than 350.
- Very rapidly falling CD4 count.
High viral load.

Special situation (seroconresion, children, prequenyor post exposure prophylaxis). (Halperin and Epstein, 2004)

**Choice of drugs:** Drugs are individualized to suit the particular patient needs according to:

- The stage of HIV disease.
- Clinical trial data.
- Other medical history e.g. renal stone.
- Drug efficacy synergy.
- Interaction with other medications.
- Ease of compliance.
- Source of HIV infection.
- Restate pattern.
- CNS penetration of the patient.

Initiation is with at least with two or three drugs depending on particular individual circumstance. The first combination many be change if it failed in some aspects. Stopping of antiviral therapy may be needed in a number of circumstameegcummlative toxicity or drug interactions. Poor quality of life and the view of the patient must be considered.(Bhattacharya, 2004)

**Specific therapeutic situation**

**Acute seroconversion:** Antiretroviral usage is controversial

**Pregnancy:** Antiretroviral therapy may be used for maternal indication further indication for the use of antiretroviral agents in pregnancy is to reduce the risk of transmission of HIV to the fetus.

**Children:** Pediatrician with specialized knowledge of current practice should carry out the management of HIV infection in children - many of the drugs available for adult use do not have pediatric license.
**Post exposure prophylaxis:** The use of zidovudine following needle sticking injuries or other parenteral exposure with is a know HIV - infected martial has been shown to reduce but not remove the risk of sero conversion in health workers. (Bhattacharya, 2004)

**2.17. Control of AIDS:** There are four basic approaches to the control of AIDS:

1. **Education:** Until a vaccine or cure for AIDS is found, the only means at present available is health education to enable people to make life saving choices (e.g. avoiding indiscriminate sex using condoms). There is, however, no guarantee that the use of condoms will give full protection. One should also avoid the use of shared razors and toothbrushes. Intravenous drug users should be informed that the sharing of needles and syringes involves special risk. Women suffering from AIDS or who are at high risk of infection should avoid becoming pregnant since infection can be transmitted to the unborn or newborn. Educational material and guidelines for prevention should be made widely available all mass media channels should be involved in educating the people on AIDS, its nature, transmission and prevention; this includes international travelers.

2. **Prevention of blood borne HIV transmission:** People in high-risk group should be urged to refrain from donating blood, body organs, sperm or other tissues. All blood should be screened for HIV 1 & HIV 2 before transfusion. Transmission of infection to hemophiliacs can be reduced by introducing heat treatment of factors VIII and IX. Strict sterilization practices should be ensured in hospitals and clinics. Presterilized disposable syringes and needles should be used as far as possible. One should avoid injections unless they are absolutely necessary.

3. **Specific prophylaxis:** At present there is no vaccine or cure for treatment of HIV infection / AIDS. However, several researchers are working on drugs to interfere with HIV production cycle at one stage or the other. Antiviral chemotherapy with the chemical compound zidovudine (AZT) whiles not a cure, as proved to be useful in prolonging the life of severely ill patients. The AZT
however, neither restores the immune system, not does it destroy the HIV virus already installed in cells (Raviglione, Narain and Kochi, 2004)

**4. Primary health care:** Because of its wide-ranging health implications, AIDS touches all aspects of primary health care, including mother and child health, family planning and education. It is important therefore that AIDS control programmer are system is essential.

**AIDS surveillance:** Limiting the spread of HIV requires constant surveillance-reporting and record keeping of cases for scientific purposes. The Govt. Of India have established a network of surveillance centers in the country to screen high-risk groups. This includes establishment of nine referral centers (e.g., National institute of Virology, Pune Christian Medical College, Vellore All India Institute of Medical Sciences, New Delhi, and National Institute of Communicable Diseases, Delhi) where higher level diagnostic facilities are available. By the end of 1992 govt Of India has established 62 surveillance centers for screening persons practicing high risk behavior, 180 zonal blood testing centers (inclusive of 62 surveillance centers) have been set up where blood testing facilities for HIV in the country a separate wing “National AIDS Control Organization “has been set up under the Ministry of health and family 0.Welfare. (Cardona and Jain, 2007)

2.18. PREVIOUS STUDY

2.18.1. Snap Behavioral And Epidemiological Survey:

- In the study conducted by SNAP behavioral and epidemiological survey in 2002. The study cover 14 states among Target group: antenatal care attendants, university students, Truck drivers, Tea sellers, Military servicemen, displaced people, T.B patients, STIs patients, street children, suspected cases, prostitutes refugees. It reveals.

**The following results:**

- 65% of respondents hear about AIDS. 35% said that they never heard about it.
- Most of them hear about it from the radio and T.V (55.6%), only 25.9% from health workers.
Concaving the attitude towards AIDS patients and stigma than half of the respondents 53.2% said that they will not buy food from a food seller having AIDS , 31% said they will not nurse an AIDS patients 30% said that they prohibit a teacher with AIDS from teaching . And a same percentage 30% prohibits their children to go to school to prevent contracting the HIV/AIDS(Beaglehole et al., 2011)

2.18.2 The study conducted by Alexandra Rosgers department of community medicine, in southern India 2013

the surveyed 202 pregnant women attending a rural antenatal clinic in Southern India to investigate HIV-related knowledge, attitudes toward infant feeding practices, and perceived benefits and risks of HIV - testing. Of the total of 202 women surveyed, 189 women (94%) had heard of HIV/AIDS and 60% of them had relatively good knowledge regarding risk factors for HIV transmission. However, 48% did not know that there are “means to prevent mother to HIV transmission.” If women were not to breastfeed her baby negative attitudes expected from the partner would include 84% thinking the mother is harming the baby, 78% thinking she is not a good mother, 74% thinking she has HIV, AND 66 thinking she has been unfaithful. 97% of women did not perceive themselves at risk for HIV and only 57 % had been tested for HIV, 85 % of women expressed their willingness to be tested (Patton, 2005)

2.18.3 The study conducted by Zubairulliyasu, Mohammed Kabir and Muktar H. Aliyu in 2006 Dec

this study assessed Knowledge of HIV/ AIDS and attitude toward (VCT) voluntary counseling and testing among adults in rural community in northern Nigeria .the study covert 210 adult in northern Nigeria. The majority of respondent (59%) did not know the causative agent of AIDS, knowledge of route of disease transmission was high, with 71 % and 64 % of study participants mentioning sexual activity and unscreened blood transfusion,
respectively, as possible transmission routes. of premarital sex outlawing prostitution condom use and screening of blood before transfusion as protective measures. Overall, 58 (27.6%), 80 (38.1%) and 72 (34.3%) of the respondents had good fair and poor knowledge of HIV/AIDS, respectively. more than half of the respondent had adequate knowledge of HIV/AIDS and the majority were willing to have VCT (Nelson, 2002)

2.18.4 The study conducted by Anand D. Meundi in May 21, 2007

To assessed HIV/AIDS related knowledge, Attitudes, and practices among the 660 females (aged 19-49 years) in south India. Was surveyed using a stratified 2-stage random sampling design with probability 54% of participants knew that AIDS is caused by "HIV" virus and 44% could correctly identify all modes of transmission, 52% believed in one or more myths, 41% did not know that condoms can prevent HIV, and 18% had not heard of a condom. Higher HIV knowledge scores were significantly associated with male gender, higher education, currently married, higher frequency of reading newspapers, listening to radio or watching Television, and willingness to get tested for HIV (P < .01). 34% felt that HIV infected individuals should be kept away from others and 40% were not willing to accept a family member with HIV. 16% of respondents reported that they consistently used condoms 62% were willing to undergo and HIV test if provided free of cost (Kinsler et al., 2007).
HIV Replication Cycle
Chapter Three

Research Method

3-1 Study type: A descriptive cross – sectional facility center based study.

3.2 Study area: The Study was conducted in Alsahafa health center—Khartoum state (antenatal care unit and family planning)

- It was established in 1976 by the popular (special cost
- It lies in Alsahafa (19)in the west between Gabra Street and Alsahaf Street.
- It work two shift morning from 7:30Am - 3: 30Pm, evening from 6pm – 10 pm.
- The medical staff in the center about 5 family physician, one obstetrician, one dermatologist and one peadiatrition.
- It delivers health services including all PHC component like vaccination, Nutrition, antenatal care and family planning, lab services, Minor Surgery theater and health education.
- It contain section for u/s, ECC, X-Ray machine, pharmacy and statistical section.
- It serves about 10,000 populations per years.

The clinic is attended by 300-400 clients monthly for antenatal care and family planning. There is 8 beds for short stay.

3.3 Study population:

Women in Reproductive age between(15-49).

Who attended the antenatal care unit and family planning at Alsahfa health center during the study data collection period.
3-3-1 inclusion criteria: All females in reproductive age (15-49) who attended the health center for complaints and consultation including the pregnant during the study data collection period.

3-3-2 Exclusion criteria: Those who are refused to participate.

3.4. Study variables: The dependent variables were the HIV/AIDS Knowledge, Attitude and practice among reproductive females attended Alsahafa health center.

The independent variable include: Age, education, occupation, marital status …… etc.

3.5 study duration: The study was carried out during two months from 1st of December 2017 to 1st of February 2018.

3.6 Sample Size and technique: Sample Size calculation were made based on the following:-

\[ n = \frac{N}{1 + (N \times e)} \]

n: sample size (200)

N: number of females aging (15-49) presented to health center / month (100)

e: margin of error 0.05

Sample size (200) women seeing every other day in health center from 1st of December 2017 to 1st of February 2018.

3.7 data collection: Data were collected through direct interview, using specifically pretested designed Questionnaire. The Questionnaire Extracted information regarding socio demographic characteristics (Age, education, marital status …. etc.)

3.8 data analysis: The data were analyzed using SPSS software computer program version 22.
3.9 **data presentations:** The result are organized in a form of simple frequency tables & graphs.

3.10 **Ethical consideration:** An official letter was taken from Aljazeera University / ministry of health of Khartoum state to approach the director of Alsahta health center for conduct the study. The study's purpose was explained to each woman prior to conducting the interview. Participant names were not recorded as part of questionnaires or interview (Confidentiality). Privacy of collected data was considered. All participant were informed that the data collected will be confidentially treated.
Chapter Four

Results

This research has been approached through cross sectional health center – based study where 200 females at the reproductive age (15-49) years, were enrolled. The subject (n=200) who attended to the center during the data collection period.

(1st of December 2017 to 1st of February 2018).

All subjects were met by the researcher through personal interview, using a specifically pretested designed questionnaire for collecting the required data after being properly revised; the collected data were classified, interpreted and presented in the following sequence:

Table (1) Distribution of Age among female in reproductive Age n=200

<table>
<thead>
<tr>
<th>Distribution of Age among female in reproductive Age</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>15—24</td>
<td>63</td>
<td>31.0</td>
</tr>
<tr>
<td>25--34</td>
<td>70</td>
<td>35.0</td>
</tr>
<tr>
<td>35--44</td>
<td>54</td>
<td>27.0</td>
</tr>
<tr>
<td>45--50</td>
<td>13</td>
<td>6.5</td>
</tr>
<tr>
<td>Total</td>
<td>200</td>
<td>100</td>
</tr>
</tbody>
</table>

Classification of the participants according to age, showed that 70 (35%) of them were found to have fallen in the age group (25-34) years, where as 63 (31.5%) of them were falling in the age group (15-24) years.
Table (2) Education level among female in reproductive

<table>
<thead>
<tr>
<th>Education level among female in reproductive</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illiterate</td>
<td>24</td>
<td>12.0</td>
</tr>
<tr>
<td>Primary</td>
<td>57</td>
<td>28.0</td>
</tr>
<tr>
<td>Secondary</td>
<td>70</td>
<td>35.0</td>
</tr>
<tr>
<td>High school</td>
<td>49</td>
<td>24.5</td>
</tr>
<tr>
<td>Total</td>
<td>200</td>
<td>100</td>
</tr>
</tbody>
</table>

When they were classified according to their education level, it was noticed that 70 (35%) of them were found to have secondary education, whereas 57 (28.5%) of them were having primary education, with an illiteracy rate of 12%.

Table (3) Job Distribution n=200

<table>
<thead>
<tr>
<th>Job Distribution</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>House wife</td>
<td>92</td>
<td>46.0</td>
</tr>
<tr>
<td>Student</td>
<td>44</td>
<td>22.0</td>
</tr>
<tr>
<td>Employed</td>
<td>24</td>
<td>12.0</td>
</tr>
<tr>
<td>Worker</td>
<td>25</td>
<td>12.5</td>
</tr>
<tr>
<td>Unemployed</td>
<td>4</td>
<td>2.0</td>
</tr>
<tr>
<td>Worker</td>
<td>10</td>
<td>5.0</td>
</tr>
<tr>
<td>Free Worker</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Total</td>
<td>200</td>
<td>100</td>
</tr>
</tbody>
</table>

When they were classified according to their occupations, it was noticed that 92 (46%) of them were housewives, whereas 44 (22%) of them were students.
Table (4) Marital Status n=200:

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>126</td>
<td>63.0</td>
</tr>
<tr>
<td>Single</td>
<td>65</td>
<td>32.5</td>
</tr>
<tr>
<td>Widowed</td>
<td>3</td>
<td>1.5</td>
</tr>
<tr>
<td>Divorced</td>
<td>6</td>
<td>3.5</td>
</tr>
<tr>
<td>Total</td>
<td>200</td>
<td>100</td>
</tr>
</tbody>
</table>

Classifications of the study subjects (ss) according to their, Marital Status, showed that 126 (63%) of them were Married, whereas 65 (32.5%) of them were single:

Table (5) Distribution of resident n=200:

<table>
<thead>
<tr>
<th>Distribution of resident</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>aloshara</td>
<td>49</td>
<td>24.5</td>
</tr>
<tr>
<td>alshafa</td>
<td>134</td>
<td>67.0</td>
</tr>
<tr>
<td>gabra</td>
<td>10</td>
<td>5.0</td>
</tr>
<tr>
<td>Aldeam</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Gaza</td>
<td>6</td>
<td>3.0</td>
</tr>
<tr>
<td>Total</td>
<td>200</td>
<td>100</td>
</tr>
</tbody>
</table>

The study showed that 134 (67%) of the participants came from Alshafa, whereas 49 (24.5%) of them came from Aloshara.
### Table (6) Source of Knowledge n=200

<table>
<thead>
<tr>
<th>Source of Knowledge</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Television / Radio</td>
<td>182</td>
<td>91.0</td>
</tr>
<tr>
<td>Internet</td>
<td>123</td>
<td>61.5</td>
</tr>
<tr>
<td>Newspaper</td>
<td>118</td>
<td>59.0</td>
</tr>
<tr>
<td>From Friend</td>
<td>90</td>
<td>45.0</td>
</tr>
<tr>
<td>Doctors</td>
<td>103</td>
<td>51.5</td>
</tr>
</tbody>
</table>

It was found that all participants (n=200) where found knowledgeable about AIDS, when the participants were asked from where did they hear about AIDS, 182 (91%) of them said from TV and radio, whereas 123(61.5%) of them said from internet, as

### Table (7) Knowledge of participant about Symptoms n=200

<table>
<thead>
<tr>
<th>Knowledge of participant about Symptoms</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin rash</td>
<td>68</td>
<td>34.0</td>
</tr>
<tr>
<td>Loss of weight</td>
<td>158</td>
<td>79.5</td>
</tr>
<tr>
<td>Persistent diarrhea</td>
<td>89</td>
<td>44.5</td>
</tr>
<tr>
<td>Cough</td>
<td>37</td>
<td>18.5</td>
</tr>
<tr>
<td>Loss of appetit</td>
<td>103</td>
<td>51.5</td>
</tr>
</tbody>
</table>

When they were asked about the symptoms of AIDS, 158(79.5%) of them said loss of weight, where as 89 (44.5 %) of them mentioned persistent diarrhea.
Table (8) Knowledge of participant about mode of transmission N=200

<table>
<thead>
<tr>
<th>Knowledge of participant about mode of transmission</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual relation</td>
<td>198</td>
<td>99.0</td>
</tr>
<tr>
<td>Blood Transfusion</td>
<td>200</td>
<td>100</td>
</tr>
<tr>
<td>Working and living with infected person</td>
<td>32</td>
<td>16.0</td>
</tr>
<tr>
<td>Cough and sneezing</td>
<td>32</td>
<td>16.0</td>
</tr>
<tr>
<td>From infected mother for baby during the pregnancy or lactation</td>
<td>188</td>
<td>94.0</td>
</tr>
<tr>
<td>By mosquito bite</td>
<td>34</td>
<td>17.0</td>
</tr>
<tr>
<td>Piercing the skin</td>
<td>196</td>
<td>98.0</td>
</tr>
<tr>
<td>Sharing on drink and food</td>
<td>14</td>
<td>7.0</td>
</tr>
</tbody>
</table>

When they were asked about AIDS mode of transmission, all of them said through blood transfusion, where as 198(99 %) of them said through sexual relation, 196 (98 %) of them said through piercing the skin.

Table (9) Knowledge of participant about Rout of transmission

<table>
<thead>
<tr>
<th>Knowledge of participant about Rout of transmission</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>By placenta</td>
<td>179</td>
<td>89.5</td>
</tr>
<tr>
<td>During delivery</td>
<td>56</td>
<td>28.8</td>
</tr>
<tr>
<td>Lactation</td>
<td>63</td>
<td>31.5</td>
</tr>
</tbody>
</table>

When they were asked about the route of transmission, 179(89.5 %) of them said, by placenta, where as 63 (31.5 %) of them said through lactation.
When the participants were asked (n=200) how they can prevent them self from HIV/AIDS infection, where all of them said avoiding illegal 74 (37.0) sex, whereas 200 (100 %) of them avoiding sharping share instrument.
## Percentage of those who know Attitude towards people Living with HIV/ AIDS

<table>
<thead>
<tr>
<th>NO</th>
<th>Question</th>
<th>Frequency</th>
<th>Figuration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Answers</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>1</td>
<td>Do you think person who had HIV is aberrant?</td>
<td>43</td>
<td>157</td>
</tr>
<tr>
<td></td>
<td></td>
<td>![Fig (1)]</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>do you think the infected women wants to bear a child?</td>
<td>29</td>
<td>171</td>
</tr>
<tr>
<td></td>
<td></td>
<td>![Fig (2)]</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>do you buy from an infected person?</td>
<td>73</td>
<td>127</td>
</tr>
<tr>
<td></td>
<td></td>
<td>![Fig (3)]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Will you hide infected from people?</td>
<td>74</td>
<td>126</td>
</tr>
<tr>
<td></td>
<td></td>
<td>![Fig (4)]</td>
<td></td>
</tr>
<tr>
<td>NO</td>
<td>Answers</td>
<td>Frequency</td>
<td>Figuration</td>
</tr>
<tr>
<td>----</td>
<td>---------</td>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td></td>
<td>Question</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>5</td>
<td>Have you ever given support HIV/ AIDS infected person?</td>
<td>17</td>
<td>183</td>
</tr>
<tr>
<td>6</td>
<td>if an infected person bleeds and you are the only person available do you help him?</td>
<td>115</td>
<td>85</td>
</tr>
<tr>
<td>7</td>
<td>if you are Asked to do HIV test will you agree for that?</td>
<td>163</td>
<td>37</td>
</tr>
</tbody>
</table>

Referring back to the master table shown above, the following facts are observed:

- 43 (21.5%) of the participants they think that person who had HIV/AID is aberrant.
- 73 (36.5%) of the participants they buy from an infected person.
- 17 (8.5%) of the participants they have given support HIV/ AIDS infected person.
163 (81.5%) of them agree to do HIV test.

Fig (8) when the participants were asked about the women are at high risk for HIV/AIDS, 138 said yes, whereas 62 said no.

Fig (9) those who said yes in fig(8) (n = 138), were asked again to mention the causes. 88 (63.5%) of them mentioned blood transfusion due to pregnancy, deliver and abortion, whereas 35 (25.%) of them mentioned the physiological of female genital organ.
Fig. (10) When the participants (n=200) were asked is HIV/ AIDS making health problem in Sudan, 198 (99%) of them said yes.

Fig. (11) When the participants (n=200) were asked is HIV/ AIDS discusses with your family and how to protected, 144 (72%) said yes,
Fig (12) When the participants (n=200) were asked about Is there the HIV / AIDS society at your district said yes 45 (21.5%).

Fig. (13) When the participants (n=200) were asked about is there any awareness sessions held in the residence said yes 73 (36.5%).
Chapter Five

Discussion

As stated previously in the first chapters of this study that’s its main objective is to assess the knowledge, attitude and perception among a group of 200 females at the reproductive age (15-49) years towards HIV/AIDS. The study showed that all participants had heard about AIDS mainly through multimedia (TV, Radio, internet,…). AIDS as a fatal disease is taken seriously by all organizations and governments. So, great effort is going on to enhance the level of knowledge and awareness of people towards the disease. Add to this the level of education among the study population was somewhat satisfactory as only 12% of them were illiterate. The role of doctors and others health care givers in dissemination of information & knowledge about AIDS comes at the last level which is not accepted. Great efforts in health education is needed and expected from health care to go hand by hand with other channels. 63% of respondents stated that there is no awareness session in their areas. This result should be considered by the responsible departments and persons in federal & states ministries of health and HIV/AIDS programs. In spite of the fact that all the respondents had heard of HIV/AIDS and the satisfactory knowledge about the mode of transmission through sexual contact and blood transfusion, still there is some misconceptions & misunderstanding that HIV/AIDS can be transmitted through mosquito bites (17%), coughing and sneezing (16%) they think AIDS can be transmitted through sharing food & drinks with infected people & still there is fear from acquiring the disease through food & drinks. 22% of the study population consider an HIV person is not good in behavior and 37% will not disclose an HIV positive relative. These issues need to be addressed through behavioral change campaigns. For the vertical transmission the respondents have a good knowledge about it. In a study done in India if among 202 pregnant women attending a rural antenatal clinic in southern India to investigate HIV-related knowledge, out of 202 surveyed women, 189 (94%) had heard of HIV/AIDS. (Patton, 2005), compared with the all participants in our study done in south India.
to assess HIV/AIDS related knowledge, attitudes, and practice among females (15-49) years. The involved 660 subject, the study revealed that 54% of the subjects knew that AIDS is caused by HIV virus. and 44% could correct identify all modes of transmission (Kinsler et al., 2007).

In a study conducted by SNAP behaviors and epidemiological survey in 2002 the study target group antenatal care attendants, university students, truck, tea sellers military servicemen, T.B patients, STIs patients suspected cases, prostitutes and refugees, it revealed that 65% of the respondents heard about AIDS most of them heard about it from the radio and TV (55.6%), only 25.9% from heath workers. (Beaglehole et al., 2011) 85% of the participants said that they will not become pregnant if they were HIV positive. This reflects that they have not heard about the new drugs which can reduce the transmission to less than 1%. 69% of study population agreed that females are more vulnerable to the risk of infection & this is attributed mainly to blood transfusion during obstetrical emergencies in case of pregnancy–labor or abortions. It is obvious that hearing about HIV/AIDS is not enough and is not up to the level for changing behavior, This needs to be addressed through comprehensive planned behavioral change campaigns that will not contradict with religious, cultural, rules and inherited values of the communities. Those who said that they have societies for AIDS in their area were only 21.5%, so great efforts are needed to spread these societies working in AIDS everywhere and definitely this will come out with good results to be familiar with all issues related to the problem of HIV/AIDS. For the issue if an infected person bleeds and you know him and you are the only person available, do you take care of him/her, 42.5% said no which indicates the great fears from the disease and still a lot of information about the disease needs to be specified clearly, 18.5% mentioned that they will not do the test for AIDS if they are asked to do, so, that may explain clearly the fear of psychological stress & social stigma that people feel towards the disease. Contribution in prevention & health education of the respondents was weak as only 37% said yes while 81.5% have no role or any activity, and it is noticed that the contribution increases with the increased level of education which was un expected result.
Chapter six
Conclusion and Recommendation

6.1 Conclusion:
The facts assembled from this study, have shed much light on the issue handled.

The following results constitute the main outcome of this research:

- Hearing of HIV/AIDS is not enough to change the behavior of people towards HIV/AIDS transmission.
- The main channel or tool for dissemination of information was the multimedia.
- Health care providers should take the leading role in awareness to clarify more about HIV/AIDS transmission.
- More TV and radio spots and talks from experts are needed.
- More information about HIV/AIDS needs to be disseminated through different channels.
- Misconception about mode of transmission especially through mosquitoes & insect bites, food should be addressed.
- Stigma and discrimination of P L W H A people living with HIV/AIDS are still one of the major health problems.
- Women at reproductive age have not enough knowledge of ARV drug that can reduce the vertical transmission.
6.2 Recommendation:
Apart from what has been achieved from this study the researcher would like to take this opportunity to submit the following Recommendation

- HIV /AIDs should come to the top priorities of the MOH and the policy makers, stakeholders and to be considered as a major health problem.
- Involvement of nongovernmental organization (NGOs) & community based organizations (CBOs) in all activities of controlling HIV/ AIDs should be given high consideration.
- Formulation of Antiaids associations and groups at schools, community working places …etc.
- SNAP at federal and state level should take the leading role of combating HIV/AIDs.
- Launching of a comprehensive planned behavioral change campaigns among male and female population (BCC).
- Encourage & increase safe behaviors to reduce transmission of HIV/AIDs.
Reference:

- (Beaglehole et al., 2011) WWW.un AIDS .org / sites / default / files / country / document.
- (Bhattacharya, 2004) Kumar parvenu and dark Michel. infections, diseases, Tropical.
- (Cardona and Jain, 2007) Govt. of India, Health information of India (2007) GDHS, NEW Delhi.
- (Kinsler et al., 2007) Journals of the International association of providers of AIDS care (JIAPAC).
- (Lu et al., 2004) Lu YL, Bennett RP, WILLS Jw, et al, Aleucine Triplet repeat sequence (Lx x)4 in P6gag is important for vpr incorporation into human immunodeficiency virus Type particles. Jvirol2004.
- (Luo et al., 2008)
(Raviglione, Narain and Kochi, 2005) Raviglione M.C. Narain J.P., Kochi A, HI-Associated Tuberculosis in Developing Countries Health Education in South East Asia, p-4.


(Baily & love's short practice of Surgery special infection viruses AIDS 1995. 87

(Braaten D, Aberham, C Frank EK, et al cyclosporine A- resistant human immunodeficiency virus type I Mutants demonstrate that gag encodes the functional Target of cyclophilin A. J virol 1996.

(Centers for disease Control pneumocystis pneumonia loss Angeles MMWR 1981.

(Frank EK, Yuan HE, luban J. Specific incorporation of cyclophilin A in to HIV— f’irions. nature 1994.

(Karczewki MK, Strebel K, cytoskeleton association and virion incorporation of the human immuno- deficiency virus type I vif protein Jvirol 1996.

(Kondo E, Gottlinger HG. A conserved LXXIF sequence is the major determinate in P 6909 required for the incorporation human immunodeficiency virus Type I vpr .J virol 2003


(Welker R, Kottler H, Kalbitzer HR, et al. human immunodeficiency type I Nef protein is incorporated the viral particles and especially, virology 1996.
بسم الله الرحمن الرحيم

 مركز الصحافة غرب (اردعاية الصحيفة الأولية)

 استبيان لقياس المعرفة والاتجاهات عن مرض الإيدز

 بين النساء في عمر الإنجاب (15-49)

 1. العمر □ الوظيفة: □ مستوى التعليم: □ الحالة الاجتماعية: □ مكان السكن:

 2. هل سمعتي عن الإيدز؟ (1) التلفاز □ (2) الراديو □ (4) الزملاء □ (5) الإنترنت □

 3. ماهي أعراض مرض الإيدز؟ (1) طفح جلدي □ (2) فقدان الوزن □ (3) إسهال مزمن □ (4) كحة □ (5) فقدان الشهية □

 4. هل الإيدز مرض خطير وقاتل؟ (1) نعم □ (2) لا □

 5. هل يمكن علاجه؟ (1) نعم □ (2) لا □

 6. هل يوجد مصل واقٍ من هذا المرض؟ (1) نعم □ (2) لا □

 7. ينتقل الإيدز بالطريقة الآتية:

 (أ) العلاقات الجنسية. (1) نعم □ (2) لا □
 (ب) نقل الدم. (1) نعم □ (2) لا □
 (ج) العمل أو السكن مع شخص مصاب. (1) نعم □ (2) لا □
 (د) الكحة والعطس. (1) نعم □ (2) لا □
 (ه) من الأم المصابة إلى جنينها أو رضيعها. (1) نعم □ (2) لا □
 (و) عن طريق عض البعوض والحشرات الأخرى. (1) نعم □ (2) لا □
 (ز) ثوابط الجلد والحقن والإبر. (1) نعم □ (2) لا □
 (ل) المشاركة في الأكل والشرب. (1) نعم □ (2) لا □
8. هل يمكن لشخص أن يصاب بمرض الإيدز إذا استعمل حقنة أو موس استعملها شخص مصاب بالإيدز؟
(1) نعم (2) لا

9. هل تعتقد أن أي شخص مصاب بالإيدز هو شخص غير سوي؟
(1) نعم (2) لا

10. هل ينتقل مرض الإيدز من أم حامل مصابة بمرض الإيدز إلى جنينها؟
(1) نعم (2) لا

11. إذا كانت الإجابة بنعم كيف تكون طريقة الانتقال:
أ. عن طريق المشيمة (1) نعم (2) لا
ب. عند الولادة (1) نعم (2) لا
ت. عن طريق الرضاعة (1) نعم (2) لا

12. هل تعتقد أن المرأة المصابه بالإيدز ترغب في الإنجاب؟
(1) نعم (2) لا

13. إذا وجد شخص مصاب وهو بائع طعام هل تستهري منه الطعام؟
(1) نعم (2) لا

14. إذا وجد شخص في أسرتك أصيب بالإيدز هل تحاول أن تخبئ مرضه عن الناس؟
(1) نعم (2) لا

15. هل تعرف أي شخص مصاب بالمرض أو الفيروس سواء رجلاً أو امرأة؟
(1) نعم (2) لا

16. كيف يحمي الإنسان نفسه من الإصابة بمرض الإيدز؟
أ. يقتصر في علاقاته الجنسية مع شخص واحد غير مصاب (1) نعم (2) لا
ب. يستعمل العازل الذكري / الأنثوي عند الجماع (1) نعم (2) لا
ت. امتعت عن العلاقات الجنسية غير المشروعة (1) نعم (2) لا
17. ما هي أنسب الطرق التي يمكن أن نوضح بها للناس عن مرض الإيدز؟
أ. الإذاعة والتلفزيون
ب. الجوامع، رجال الدين
ج. الندوات العامة والمحاضرات
د. المدارس (المناهج التعليمية)

18. هل توجد جمعية لمكافحة الإيدز في منطقتك؟ (1) نعم (2) لا

19. هل أنت مشتركة في جمعية مكافحة الإيدز؟ (1) نعم (2) لا

20. هل تم عقد ندوة نقاش عن الإيدز في منطقتك؟ (1) نعم (2) لا

21. هل شاركتي في برامج توعية عن الإيدز وطرق مكافحته؟ (1) نعم (2) لا

22. هل سبق وتحدثتي مع أسرتك عن الإيدز وكيفية مكافحته؟ (1) نعم (2) لا

23. هل سبق وان شاركتي في دعم مصابين بمرض الإيدز؟ (1) نعم (2) لا

24. إذا كانت الإجابة بنعم، ما هو نوع الدعم؟ ....................................................

25. هل الإيدز يمثل صحية في السودان؟ (1) نعم (2) لا

26. ما هي أكثر مناطق السودان إصابة بمرض الإيدز؟
أ. الخرطوم
ب. شمال السودان
ج. غرب السودان
د. شرق السودان
ج. جنوب السودان
ه. وسط السودان

27. هل تعتقد أن النساء أكثر عرضة للإصابة بمرض الإيدز؟
(1) نعم (2) لا

28. إذا كانت الإجابة.. نعم، ما هو نوع الدعم؟
1- التكوين الطبيعي للأعضاء التناسلية للمرأة
2- النوع
2- نقل الدم بسبب الحمل والولادة والإجهاض
29. إذا حدث وأن نزف شخص مصاب بالمرض معروف لديك لسبب أو آخر وكنت أنت الوحيدة القادرة على إسعافه فهل تفعل؟

لا □ 1 نعم □ 2

إذا الإجابة نعم لماذا؟ ..........................................................

إذا الإجابة لا لماذا؟ ..........................................................

30. إذا طلبت مئتك عمل اختبار الكشف عن الفيروس في الدم فهل توافق على ذلك؟

لا □ 2 نعم □ 1

This study will conduct by Dr. Nazik Ahmed Elbashir, medical doctor to fulfill the requirement of master degree in family medicine (MFM).

Respondents:

I agree to participate in this research. The researcher till me the research ethics and tools and she answered all my questions.

Also I understand than my participation in this study is voluntary and I can withdraw at any time.

Research participant signature

................................................................................................................................................
................................................................................................................................................
................................................................................................................................................