CHAPTER 2

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

Literature review and related research

The literature is reviewed covering these topics:

1. Acquired Immunodeficiency Syndrome
2. Knowledge regarding AIDS among adolescents
3. Attitude regarding AIDS among adolescents
4. Risk behavior regarding AIDS among adolescents

Acquired Immunodeficiency Syndrome

HIV/AIDS

Acquired Immunodeficiency Syndrome (AIDS) is a disease caused by virus which attacks and weakens part of the body's immune system. It leaves a person vulnerable to a variety of unusually life-threatening infections and cancers (WHO, 1990). Acquired means that it is passed from person to person. Immunodeficiency describes the condition when the body's ability to protect itself against disease is weakened. Syndrome means a group of signs and symptoms which result from a common cause or appear in combination which presents a clinical picture of a disease (WHO, 1990). Human Immunodeficiency Virus is the causal agent of AIDS.

The infected cells are turned into virus-producing cells and eventually destroyed. Virus replication increases

when the infected T-helper cell is activated. Helper cells can be activated by infections or by the presence of substances of concentrated Factors VIII. The newly produced virus is liberated by budding out from the host cell and infecting more helper cells, eventually leading to their destruction. Once helper cells are delayed, B-lymphocytes are inefficient. Cytotoxic T cell and lymphokine-producing T-cell activity is also impaired, resulting in decreased ability of the immune system to destroy neoplastic and virus infected cells (Pratt, 1991).

Clinical manifestation

HIV infection usually proceeds through four clinical stages (Schoub, 1994).

1. Acute HIV infection. A complex of flu-like syndromes including fever, malaise, lymphadenopathy, and fatigue generally occur about 14-21 days after exposure to the virus and are resolved within a week or so, followed in most patients by seroconversion to positive antibody to HIV (Flaskerud & Ungvarski, 1992).

2. Asymptomatic phase. Following seroconversion, most people infected with HIV may not show any symptoms for months and even years. This period of silent infection is called the latency period. During the latency period, it is difficult to detect the virus in the blood, although antibodies to HIV can be detected. The latency period is long and variable, and may range from 4 months to longer

than 10 years. A period of 5 years without symptoms is typical (Aboagye-Kwarteng & Moodie, 1995).

3. AIDS related conditions (ARC). In this phase, many individuals may develop a variety of indicators of unhealthy due to HIV infection without developing major opportunistic infection or secondary cancers. The clinical signs includes weight loss, diarrhea, fever, night sweats, and swollen lymph glands, which can persist for several weeks (Pratt, 1991).

4. AIDS. This is the final stage of HIV infection. It is a disease process caused by HIV itself and other opportunistic organisms or cancers. AIDS is characterized by opportunistic infection and malignancies that occur only in people with very low immunity. Tuberculosis, pneumocystis carinii pneumonia, and cryptococcal meningitis are opportunistic infections commonly found in AIDS patients (Aboagye-Kwarteng & Moodie, 1995). Kaposis sarcoma is a typical cancer.

Between 10% and 30% of people infected with HIV developed AIDS and another 25% to 30% developed HIV-related symptoms within 5 years. Approximately 60% developed AIDS within 12-13 years (Aboagye-Kwarteng & Moodie, 1995).

Transmission

HIV is a bloodborne virus isolated in blood, semen, saliva, tears, breast milk and cerebrospinal fluid of infected persons (Pratt, 1991). It is principally a sexually transmitted virus. However, transmission can occur via a

variety of methods involving contact with blood, blood products and other body fluids.

HIV transmission is noted to occur through three mechanisms: heterosexual and homosexual activity; direct contact with infected blood from intravenous drug use, and prenatal transmission from infected mothers to their infants, which may occur either in utero, at birth, or during lactation (Becker & Joseph, 1988).

A number of studies in the United States and Europe have documented the relationship between specific sexual and lifestyle practices and exposure to HIV infection (Essex, & Fauci, 1997). Receptive anal intercourse, multiple anonymous sexual partners, the presence of genital ulcers, and not being circumcised are all factors associated with the acquisition of HIV infection.

Infection through blood transfusion is a common problem in areas where blood donations are not screened for HIV. Other cofactors for acquisition of HIV infection have been associated with various aspects of drug and alcohol use (Finelli, Budd, & Spialny, 1993). The disinhibiting effects on behavior caused by alcohol and other drugs such as cocaine is well known and possibly allows more frequent and/or anonymous sexual exposure to the virus. The most obvious association of drugs and HIV infection is the direct transmission of the virus through the sharing of hypodermic needles, syringes, and other paraphernalia among intravenous drug users (IDUs). The risk of seropositivity increases with the increasing numbers of persons with whom needles are

regularly shared and with greater frequency of injections (Flaskerud & Unvarski, 1995).

The frequency of transmission from an infected women to her fetus or newborn infant ranges from approximately 25% to 50% in most studies (Aboagye-Kwarleng & Moodie, 1995).

From the worldwide picture of AIDS, the global pattern shows that 71% of global HIV infections are transmitted through heterosexual intercourse. Homosexual transmission accounts for 15% of infections while 7% of infections have occurred through intravenous drug use; and 5% of intravenous have occurred through blood transfusions and other blood products (Aboagye-Kwarteng & Moodie, 1995).

The virus cannot be transmitted by coughing or sneezing, shaking hands, sharing a drinking glass and plates or cutlery, hugging or kissing, insect bites, walking bare foot where people have spat, or living or working with someone who has AIDS or the HIV infection.

The pattern of transmission depends on behavior patterns and varies from place to place, and in different groups within a population. HIV spreads rapidly where there is poverty (Aboagye-Kwarteng & Moodie, 1995).

Prevention

A comprehensive approach to cause, prevention, and cure is needed to control the spread of HIV infection. The most important factor is the host. According to the literature review, host-related changes are behaviors that individuals, parents, and families can engage in or modify

to prevent exposure to HIV or progression of disease expression (Flaskerud & Ungvarski, 1995). HIV prevention and care strategies include behavior changing, blood and blood product transfusion and tissue transplantation, and prenatal exposure.

1. Behavior changing

Preventing the transmission of HIV requires changes in the behavior which increases the risk of HIV infection. Risk behaviors include early age of sexual debut, multiple sexual partners, the presence and/or history of sexually transmitted infections, inconsistent or no condom use, substance use concurrent with sexual encounter, living in areas with a higher prevalence of the HIV disease and difficulty in negotiating safer sex practices (Carasso, 1998). Sexual behavior is usually the most important factor to change to prevent HIV transmission. In many areas intravenous drug practices are also important. Behavior change is not a simple event that occurs in individuals' life, at his or her sole discretion. We need to think of behavior change as a process that takes time, and often involves repeated attempts (Aboagye-Kwarteng & Moodie, 1995).

The high risk behaviors of exposure to HIV are frequently behaviors that might lead to the transfer of blood, semen, or vaginal fluid from an infected person into the bloodstream of someone who is not infected. This happens through unprotected anal and vaginal intercourse, sharing of intravenous drug equipment, and blood, blood product and

tissue transplants (Flaskerud & Ungvarski, 1995).

(1) Sexual Exposure

Most trends are in the direction of reducing high risk sexual behavior, discriminating between the more risky (receptive) and less dangerous sexual actives, and adopting condom use (Mann & Tarantola, 1996).

No risk of sexual transmission exists for those who practice sexual abstinence. Likewise, there is no risk of infection if the partner is not infected. For persons outside these situations, the risk can be decreased by limiting the number of sexual partners and practicing protective sex. Protective sex is sexual activities in which no semen, vaginal secretions, or blood is exchanged between partners. Risk can be reduced in vaginal and anal intercourse provided a condom is worn (CDC, 1993).

The risk of infection can be reduced by avoiding specific sexual behavior and practices. These include anal receptive intercourse and multiple sexual partners (Messiah, Bucquet, & Mettetal, 1993). For those engaging in vaginal intercourse, reducing the number of sexual partners and practicing protective sex at all times can reduce the risk of infection.

(2) Intravenous Drug Use

A history of STDs, pyogenic bacterial infection and soft tissue infection at the injection site increase the risk of infection for Intravenous Drug Users (Alcabes, Schoenbaum, & Klein, 1993; Nelso et al., 1993; Solomon, Astemborski, & Warren, 1993). IDUs can eliminate their

chance of exposure to HIV infection by stopping the use of intravenous drugs. If intravenous drug use cannot be stopped, exposure to HIV infection can be prevented by ending the sharing of unsterilized injection paraphernalia. At a minimum, persons who use injected drugs should clean their equipment with bleach. CDC (1993) recommends the use of full-strength bleach to clean disposable needles and syringes because they are not intended for reuse and are very difficult to clean.

2. Blood and blood product transfusion and tissue transplantation

Infection through the use of donated blood, blood products, blood transfusion and tissue transplantation can be prevented by donor exclusion, serologic testing for HIV antibodies, and heat inactivation of products such as factor VIII concentrate (Levy, 1993; Pelersen et al., 1993).

3. Prenatal Exposure

Prenatal transmission of HIV can be avoided if infected women do not become pregnant. Pregnancy is associated with a moderate risk of infection to infants and may accelerate the development of AIDS in HIV-related mothers (Deschamps et al., 1993). Women in greater risk of exposure (IDUs, women with multiple sexual partners, with STDs, or with sexual partners at high risk of exposure) should be encouraged to undergo testing for HIV infection. Those who are infected may be encouraged to postpone pregnancy until more is known about the risk to themselves and their infants.

Knowledge Regarding HIV/AIDS

Knowledge is described in Webster's dictionary (1991) as understanding of a science, art or technique. It is the body of the truth, information and principles gained by mankind. As AIDS was first recognized in 1981, knowledge about AIDS had increased more and more through many kinds of research.

Information regarding adolescent HIV/AIDS knowledge began to appear in the literature in the mid-1980s (DiClemente, 1992). A study during this period suggested that the adolescents neither know a great deal of information about AIDS nor are concerned about the threat of AIDS (Price, Desmond, & Kukuklka, 1985). These authors assessed the HIV knowledge of 256 Ohio adolescents aged 16 to 19 years and reported that few were knowledgeable concerning modes of HIV transmission. They also found that 3 of 19 questions were answered correctly by 75% or more of the participants. DiClmente, Zorn, and Temoshok (1986) studied knowledge regarding HIV/AIDS among 1,326 adolescents ranged in age from 14-18 years old and enrolled at 10 high schools in the San Francisco Unified School District. Seventy five percent of them answered 12 out of 30 questions correctly in a test of knowledge about HIV transmission. Strunin and Hingson (1987) surveyed 860 Massachusetts adolescents aged 16-19 years old and found that only two out of nine questions were answered correctly by 75% or more of the participants.

Since 1988, there has been a general trend toward

increased knowledge about HIV and AIDS among adolescents. But many previous studies revealed that a superficial level of HIV knowledge was found in all youth (Brown & Lourie, 1994; Rozmus & Edgil, 1993; Zimet, et al., 1993).

Helgerson and Petersen (1988) studied junior high school student's knowledge about the virus that causes AIDS. They found that although many students have some factual knowledge about the virus that causes AIDS, a lot of them were misinformed about methods of viral transmission, high-risk groups for acquiring AIDS, and methods to avoid acquisition of the virus. The authors further indicated that although high school students have attained a superficial knowledge of HIV, a complete understanding is lacking. A survey by Shafer and Boyer (1991) among 544 urban high school students regarding knowledge of AIDS found that adolescents with insufficient knowledge do understand the transmission and the prevention of STDs and AIDS.

Brown and Lourie (1994) reported in their study of 325 adolescents aged 16-18 years that over 90% of adolescents know that HIV is spread through sexual intercourse and sharing intravenous needles. A more detailed knowledge about the immune system, condom use, and utility of HIV testing is, however, often lacking. They further stated that the misconception that AIDS is a "gay" or "addict" disease is significantly associated with intentions to engage in future high-risk sexual behaviors.

Millstein, Moscicki, and Broering (1994) conducted a study among 696 female adolescents. The finding showed that

over 50% of the participants did not realize that a person with AIDS may not look sick. The authors also found that almost 40% of the total participants did not believe that a monogamous relationship helps to reduce the transmission of HIV. Many adolescents felt that they ware immune to HIV infection despite their risk behavior, because they are young, heterosexual, and healthy (Wolfert & Wan, 1993).

Adolescents' misconceptions about AIDS were also investigated by Friesen and coinvestigators (1996). They reported that over 98% adolescents with an average age of 17 years knew what AIDS and HIV were, 97% knew that HIV was sexually transmitted, but many misconceptions still existed: one-third thought that HIV was transmitted by mosquitoes, 7% of them thought that HIV-infected persons were a danger in the classroom. Seventy-two percent of the adolescents knew that using a condom at every sexual encounter was the way of protection against HIV infection. The finding of Davis, Noel, Chan, and Wing (1998) revealed HIV and AIDS misinformation among both male and female adolescents in the aspects of transmission, facts and personal vulnerability.

Attitude Regarding HIV/AIDS

Attitude is defined as the mental network of concepts, beliefs, feelings and actions associated with a given object/issue (Thomas & Zanieki, 1970, cited in Doyle, 1987). It is a learned predisposition of response to people, objects or institutions in a positive or negative manner (Coon, 1989). Fishbein and Ajzen (1975) described the term

of attitude as composed of three basic features: the notion that attitude is learned, that it predisposes action, and that such actions are consistently favorable or unfavorable toward the objective.

Attitudes regarding AIDS are a reflection of one's beliefs, feelings and actions. As the attitude regarding AIDS among adolescents has been directly associated with risk behavior, it has become a topic of concern for many researchers since AIDS has spreaded all over the world (Brown & Lourie, 1994; DiClemente, et al., 1986, 1987; Shafer & Boyer, 1991).

AIDS is a life-threatening, transmissible disease (Kwarteng & Moodie, 1995). Because of its high mortality, it has evoked serious anxiety in the world (Herek, & Glunt, 1988). Brown and Turner (1989) described the common feelings related to AIDS as following: fear of contagion, homophobia and fear associated with other lifestyle behavior, and overidentification and fear of death and dying.

In most studies focusing on the attitudes of adolescents regarding AIDS, fears of contagion and misconception of AIDS were always cited as a primary concern by adolescents. In the study of DiClmente, Zorn, and Temoshok (1986), 78.7% of the 1,326 adolescents reported "being worried about contracting the disease." Over half of the surveyed adolescents, 50.6% would rather contract "any other disease than AIDS." DiClemente, Zorn, and Temoshok (1987); findings revealed an increase in the percentage of adolescents, from 34% to 54%, who did not fear getting AIDS.

Strunin and Hingson (1987) also found that 41% adolescents did not worry about getting AIDS. Goodmen and Cohall (1989) studied 196 adolescents and reported 47% of the subjects never or rarely worried about AIDS. This difference may suggest the notion of "it can not happen to me." A synergistic effect of their perception of susceptibility to AIDS is that adolescents often do not personally perceive themselves at risk (Laurance, Levy, & Rubinson, 1990).

The study of Hingson, Strunin and Berlin (1990) reported that from 1986 to 1988 among adolescents aged 16 to 18 years , the proportion who said they were worried about AIDS increased from 46% to 74%. The proportion who thought it was very or somewhat likely they will get AIDS in their lifetime also increased from 9% to 18%. Clark, Abram and Monteriro (1990) found over 80% of 56 girls aged 12-16 years old felt fear about AIDS. Dear and Moore (1994) noted in their survey that a high percentage of teenagers were fearful of contracting AIDS and overall children said AIDS is a sad or bad disease, and their replies showed an increase in anxiety.

Risk Behaviors regarding HIV/AIDS

Health risk behaviors and related social issues and problems that contribute to the transmission of the AIDS virus are often established during youth and extend into adulthood (Kann et al., 1993). These risk behaviors include sexual history and sexually transmitted infections, condom use, substance use and alcohol use (Carasso, 1998).

Sexual history and sexually transmitted HIV infection

Most research concerning adolescents, however sparse, has focused on risk behaviors for contracting HIV (Carasso, 1998). According to a study by the Centers for Disease Control (1992), HIV instruction and selected HIV risk behaviors among high school in the United States, results indicated a significant percentage in behaviors which put the adolescents at high risk for pregnancy, AIDS, and other STDs. Wight (1993) suggested that most heterosexual youth do not consider themselves at high risk for HIV infection.

In a longitudinal study of repeated interviews of 602 adolescents across the United States, Stiffman, Dore, Cunningham, and Earls (1995) discovered that 31% of the variance in HIV risk behaviors is predicted by previously mentioned HIV risk behaviors, adolescent risk behaviors, personal variable (substance use, suicidality), environment variables (history of child abuse, relationship with parents, effectiveness and number of AIDS prevention messages), and the combination and interaction of these variables.

Goodman and Cohall (1989) in their survey of 196 adolescents in New York reported sexual activity was the major risk factor for AIDS in this population; 58% of the adolescents had engaged in sexual intercourse; 12% of those had never used contraception. A Youth Risk Behavior Survey administered by the CDC (1992) found 33.3% of male respondents and 20% of female respondents had initiated

intercourse before the age of 15.

A survey by Wayne and his colleagues (1996) of 1,090 youth (mean age = 14 years) reported that 8.8% of the sample reported their first sexual intercourse before the age of 12. Thirty-five percent had had four or more sex partners in their life. Moreover, among adolescents having four or more sexual partners, 30.7% were aged 16 or younger.

Laura and coinvestigators (1995) found that more than half (53.1%) of all high school students nationwide have had sexual intercourse during their lifetime. Nine percent of them had initiated sexual intercourse before the aged of 13. Eighty percent of the population had had sexual intercourse during their lifetime with four sex partners or more.

A survey by Wiley, James, Furney and Jordan-Belver (1997) about risk behavior of 1,408 college students in the age range from 20-24 years indicated approximately 82% of the college population reported having had sexual intercourse. Almost 13% of males and 60% of sexually active college students reported that the age of their first sexual intercourse was 14 or younger. Three percent of sexually active college males and 0.3% of sexually active females reported four or more partners during the previous three months. A survey conducted by CDC (1998) of a national representative sample of high school adolescents demonstrated that 54% of both males and females had experienced sexual intercourse.

A study of 5,514 students with an average age of

19.7 years by MacDonald and colleagues (1990) indicated that 5.5% of the sexually active students reported having had at least one diagnosed STD, and STD history increased with the number of partners. Wiley, James, Furney and Jordan-Belver (1997) also found that approximately 5% of sexually active college students reported having been diagnosed with an STD.

A study of Brown and Lourie in 1994 indicated that anal intercourse is more prevalent in heterosexual adolescents than many have assumed. With prevalence rates are greater than 10% for adolescent women in several samples. A survey of 196 students ranging in age from 14 to 20 years by Goodmen and Cohall (1989) reported that 41% of the sexually active students had had oral sex and 13% had had oral sex. In the survey conducted by CDC (1998) of a national representative sample has many of adolescents, of those having sexual intercourse, as many as 25% reported having anal intercourse.

Condom use

Aside from abstinence, the use of condoms is the only means of HIV prevention. For this method to be effective, adolescents first need to recognize the importance of their use, as well as to have easy access to condoms (Committee on Adolescents, 1995). Although access alone will not encourage condom use, lack of access is a major barrier. Furthermore, adolescents need to understand that condoms must be used consistently and correctly with every sexual encounter (Earl' 1995 cite in Carasso, 1998).

In two large telephone surveys of Massachusetts adolescents (n=2,914), Hingson, Strunin, Berlin, and Heeren (1990) found that only 37% of sexual active adolescents reported consistent condom use. A survey conducted by CDC (1992) among students of senior high schools who reported having sexual intercourse in the three months prior to the survey, 44.9% of the subjects reported they or their partners had used a condom on the occasion of last sexual intercourse. Research results from another survey found that among currently sexual active students nationwide, 54.4% reported that either of them or their partners had used a condom during the last occasion of sexual intercourse (Laura, 1995).

Wayne and colleagues (1996) found that less than half (41.7%) of sexual active college students used condoms. David and colleagues (1997) also found that approximately 55% of sexual active college males and 74% of females reported not using a condom during the last act of sexual intercourse. Research by Millstein and coinvestigators (1994) found that females in high risk groups reported a lower frequency of condom use with new partners.

Substance Use

Use of substances during sexual activity can result in "hazy" thinking and loss of inhibition, negating the effect of HIV knowledge and attitude toward participation in sexual risk activity (Carasso, 1998). Elliott and Morse (1989) stated that substance use often preceded sexual and

other. risk-taking behavior. Moss (1994) evaluated the interrelationship between substance use and sexual activity from a psychosocial perspective and found an increase in substance use and sexual activity in adolescence. Turner, Miller and Moses (1989) indicated that though intravenous drug use among adolescents is rare, they may have sexual relationships with intravenous drug users or with individuals who have had sex with such potential infected persons.

Alcohol

Alcohol influences sexual behavior and people will engage in sex more frequently and more easily if under the influence of alcohol (Donovan & McEwan, 1995). McEwan, McCallum, Bhopal, and Madhok (1992) found a direct correlation between heavy drinking and sexual risk-taking. Moscicki and coinvestigators (1993), in a sample of 878 adolescents, found that 77% of young women reported it was easier to have sex and enjoy it with more drinking; 49% worried less about using birth control when they drank. Higson and colleagues (1990) found that adolescents who have an average of five or more drinks daily were 2.8 times less likely to use condoms.

Conceptual framework

AIDS is a leading cause of death of the world's population. Adolescents are both an important target group and a potential resource for the prevention of HIV infection (WHO 1992). Knowledge, attitudes and risk behavior regarding HIV/AIDS are the important aspects in the prevention of HIV/AIDS. Knowledge regarding AIDS refers to the understanding of current information on HIV/AIDS including causes, transmission, manifestation and prevention. Attitude regarding HIV/AIDS is the network of concepts, beliefs, feelings and actions regarding HIV/AIDS. Risk behavior regarding HIV/AIDS is the practice and activities which put an individual at risk of contracting HIV.