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CHILDREN'S AWARENESS, KNOWLEDGE, AND UNDERSTANDING  
OF AIDS IN BAHRAIN

by

Anne Thomas

A thesis submitted in partial fulfillment  
of the requirements for the degree

of

MASTER OF SCIENCE

in

Family and Human Development

Approved:

UTAH STATE UNIVERSITY  
Logan, Utah

2000

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## ABSTRACT

Children's Awareness, Knowledge, and Understanding  
of AIDS in Bahrain

by

Anne Thomas, Master of Science

Utah State University, 2000

Major Professor: Dr. Jay D. Schvaneveldt  
Department: Family and Human Development

The incidence of acquired immuno deficiency syndrome (AIDS) is on the increase across the world. The purpose of this study was to explore young children's awareness, knowledge, and understanding of AIDS in Bahrain, in the Arabian Gulf region. This was done within the framework of Jean Piaget's theory of cognitive development, which spans development across time. Ninety-nine children aged 6 through 12 were administered a standardized interview to ascertain their knowledge about AIDS, its causes, outcomes, and prevention. The study explored whether knowledge about AIDS was related to age, gender, and parental education. It also examined the sources of children's knowledge. Correlational analyses,  $t$  tests, and frequency distributions were used to explore the questions. Knowledge about AIDS was related to age and gender, with older children having more knowledge than younger children, and girls having more



knowledge than boys. The media and teachers were the significant sources of information about AIDS for the children.

(63 pages)

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Anne Thomas

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## CHAPTER I

### INTRODUCTION

#### Purpose

The primary goal of this study was to examine awareness about acquired immunodeficiency syndrome (AIDS) among young children and to locate their understanding of the disease within a developmental framework. While AIDS is a monumental threat confronting the nations of the world, this study focuses only on one aspect of it: children's understanding and awareness of AIDS. This emphasis on children's understanding of AIDS is significant in terms of the fact that the children of today will form the next generation, and determine the degree to which the spread of AIDS is arrested or accelerated. Accordingly, information about their understanding of AIDS is relevant to researchers, policymakers, and educators.

#### Problem Statement

Among the many challenges threatening the world in the 21<sup>st</sup> century is the deadly human immunodeficiency virus (HIV). Since the early 1980s, there has been a tremendous amount of research generated on AIDS, and its impact on individuals, communities, and entire nations. While it is beyond the scope of this study to trace the magnitude of the AIDS epidemic, it is sufficient to say that it is a source of grave concern to the peoples of the world. In 1994, the World Health Organization (WHO) estimated

that about 12 million people were infected with HIV, and that 90% of these individuals belonged to developing nations (Berkley, Piot, & Schopper, 1994). More recently, it has been estimated that nearly 8.4 million cases of AIDS have manifested, and that between 22 and 27 million people are now infected by the virus across the globe (Glausiusz, 1997). Of these, 800,000 are children. Ninety percent of those people infected with HIV/AIDS live in conditions of poverty and deprivation. Altogether, between 4 and 5 million people have died of AIDS worldwide (Glausiusz, 1997; Thuriaux & Cherney, 1997).

The WHO's Global Program on AIDS is no longer functional, and in its place, the Joint United Nations Program on HIV/AIDS (UNAIDS) has emerged. This program represents a synchronization of the functions carried out by six agencies and programs of the United Nations system: UNICEF; the UN Development Program; the UN Population Fund; UNESCO; the World Bank; and WHO (Thuriaux & Cherney, 1997). Even as UNAIDS is trying to combat the onslaught of the epidemic, the casualties continue to mount, and there is a pressing need, especially in developing nations, for a greater investment of finances and research into the dissemination of AIDS awareness and education among the masses of high-risk peoples.

Related to this endeavor is a recent overhauling of HIV education and prevention services by the Centers for Disease Control (CDC). The CDC is now emphasizing the importance of community planning processes, and the involvement of members of

communities in creating and sustaining more effective AIDS education and prevention programs (Takahashi & Smutny, 1998).

With this recognition of the role of an individual member of a community, there arises the question of the individual's awareness of the AIDS epidemic, and his or her perception of its causes. Accordingly, the issue takes on a developmental significance, as we realize that individuals go through a sequence of stages in developing an understanding of the world in general, and issues related to diseases and their causes in particular.

### Conceptual Framework

This study is based on Piaget's cognitive-developmental theory. Piaget's theory of cognitive development spans the changes that occur in children's thinking over time (Piaget, 1970). Piaget visualized development of children in terms of a sequence of stages that "(a) unfold in an invariant sequence, (b) describe qualitatively different patterns, (c) refer to general properties of thought, (d) represent hierarchical integrations, and (e) are culturally universal" (Crain, 1992, p. 122). These stages include four general periods, each of which involves a series of specific stages. In the first period, involving the development of sensori-motor intelligence, the child acquires mastery over gross motor skills and sensory perceptions. This period involves six stages. The first stage lasts from birth to 1 month and involves the development and the use of reflexes and patterns of action, such as sucking on objects, with which the infant deals with the environment; stage two lasts up to the age of 4 months and involves development of primary circular reactions, where



the infant discovers a novel experience within his/her body and attempts to duplicate it (Piaget, 1936a). From the age of 4 months, up to the age of 10 months, the third stage involving the development of secondary circular reactions occurs, and the infant attempts to duplicate a novel experience that is outside his/her body (Piaget, 1936a). In stage four, between the ages of 10 and 12 months, the development of coordination of secondary skills occurs where the infant coordinates two different kinds of skills to obtain a single outcome (Piaget, 1970). Between the ages of 12 and 18 months, the tertiary circular reactions characteristic of stage five develops. During this stage, the child uses different kinds of actions to create different outcomes. For example, a child may repeatedly strike an object in different ways to create different kinds of sounds (Piaget, 1936a). In stage six, between the ages of 18 months and 2 years, the beginnings of thought processes appear in the developing child. During this time, children develop the concept of the permanency of objects out of sight (Piaget, 1936b).

During the second period of development, called the period of preoperational thought, and the third period, called the stage of concrete operations, the child's thinking undergoes vast changes. These periods extend between the ages of 2 and 11 years. During this period, there is a growth of symbolic thinking, where a child learns to substitute symbols for objects (Piaget, 1946). Scientific reasoning develops and becomes more sophisticated and mature during these two periods, with the level of development becoming more refined with increasing age. As children advance in the stage of concrete operations, they acquire a concept of conservation of liquids, and numbers, as well as the

classification of objects (Piaget & Szeminska, 1941). Their social thinking also undergoes a change, and as they advance in age, they become less egocentric, and more involved in cooperative play, demonstrating a greater sensitivity to, and awareness of others' perspectives (Piaget, 1924). Further, children's moral reasoning and judgment go through great changes. At the preoperational level, rules, and a blind obedience to them, characterize and influence their opinions about situations. As they advance into the stage of concrete operations, they begin to see laws as existing for the common good (Piaget, 1932). The fourth period involves the stage of formal operations, and extends from the age of 11 until adulthood. During this stage a child's thinking advances into the dimension of the abstract (Piaget, 1964).

Research indicates that young children's perceptions of illness are guided by mystical beliefs (Siegal, 1988). For instance, they may think that sickness is a manifestation of divine retribution for any misconduct (Kister & Patterson, 1980). They may also think that diseases are caused by forces of nature such as the wind and the rain. At the preoperational stage, children are likely to think that certain symbols and actions can protect them from diseases. However, as they advance through the stages of concrete operations, their ideas about diseases and their causes become more logical, but they are still very much limited to concrete and tangible phenomena (Piaget, 1960). As children reach the stage of formal operations, their thought processes become more logical and based on reasoning than ever before (Bibace & Walsh, 1981; Perrin & Gerrity, 1981; Piaget, 1960). They begin to be more informed about the nature of diseases, and their

causes, as well as of health, and their perceptions begin to acquire a more factual dimension (Schvaneveldt, Lindauer, & Young, 1990).

### Rationale

This was, in essence, an exploratory study; the primary objective of which was to study children's awareness and knowledge of AIDS. The justification for this study's focus on young children lies in the fact that children in many nations are growing up in a world in which AIDS is a very real and present threat. The disease has spread across every part of the globe, and has impacted not only individuals, but also societies and communities. Millions of children all over the world have lost one or both parents to AIDS, and are being raised by grandparents or by charitable institutions. The disease is most often associated with patterns of sexual behavior, a topic deemed unsuitable for discussion with children in many cultures. Therefore, children in many parts of the world are surrounded by the threat of the disease itself, along with a sense of personal tragedy, loss, and the dread of the unknown. It is essential that adults who are concerned with the welfare of children focus on their understanding of AIDS and their fears connected with the disease. It is also necessary for adults to answer children's questions, and to equip them with accurate information, in every way possible, in order to enable them to better meet the present and future challenge presented by this epidemic.

Most programs focusing on the epidemiology of HIV/AIDS are reactive in nature, focusing on testing and helping people deal with their diagnosis and subsequent disease

symptoms (Norton, 1990), rather than on preventing it. Only in recent years have AIDS prevention programs taken on a more pro-active dimension, with emphasis on prevention through educational programs, and dissemination of AIDS knowledge. Considerable attention has been given to the role of communication, through the use of the mass media, in spreading AIDS awareness and education about prevention (Freimuth, Edgar, & Fitzpatrick, 1993; Malbach & Flora, 1993). While millions of dollars are spent on educational and prevention programs aimed at populations believed to be at risk of contracting AIDS, hardly any investment is made in programs that cater to the need for disseminating awareness and prevention education among young children. Research indicates that children's awareness of AIDS is a developmental issue, with children developing more factual and sophisticated explanations of the issue with age (Schvaneveldt et al., 1990).

This study attempted to explore whether these previous findings (Schvaneveldt et al., 1990) apply to a sample from a culture which has a low level of reported HIV-positive individuals, as well as low numbers of AIDS patients. The low numbers of reported HIV-positive and AIDS patients in the Islamic nations of the Arabian Gulf could be related to factors such as the deeply institutionalized nature of religion and other cultural factors in the society. Because the family is universally believed to be a vital agent of education about sickness and disease for young children (Schvaneveldt et al., 1990), this study will explore whether children's awareness of AIDS is related to certain

characteristics of the family, such as parents' level of education. Further, the study explored whether gender and age are related to children's awareness of AIDS.

CHAPTER II  
REVIEW OF LITERATURE

History and Origin

Scientists have traditionally linked the development of the disease AIDS with being infected with HIV. Many scientists are in agreement that the disease originated in the Congo region of Africa, and that HIV was introduced into the human species from an animal, commonly believed to be a chimpanzee. Surprisingly, the virus was able to survive in the new host since its transfer, probably in the 1940s ("How AIDS Began," 1998). There is still dissension among a few members of the scientific community as to whether HIV is the direct cause of the disease AIDS, or whether its ubiquitous presence alongside the manifestation of AIDS is mere happenstance. Some researchers claim that the use of certain drugs leads to the gradual weakening of the immune system that characterizes the disease (Coyne, 1994). An interesting direction taken by research leads to the suggestion that alcohol abuse tends to weaken the immune system, leading to the patient's susceptibility to HIV infection (Szabo, 1997).

HIV is commonly recognized as having two forms: HIV-1 and HIV-2. HIV-1 is more prevalent across nations, and displays a large amount of genetic variability. Ten genetic subtypes of HIV-1 have been identified, with distinct subtypes rampant in different locations around the world (Anderson, Schwartlander, McCutchan, & Hu, 1996). While it is uncertain whether the genetic variability in HIV-1 leads to variations in

the pathogenicity of the virus, it has been observed that 1 of the 10 subtypes, named subtype E, is more likely to be heterosexually transmitted than are the other nine subtypes. Increased opportunities for travel and migration have led to persons becoming infected by more than one type or subtype of the virus. The subtypes of the virus have been seen to mutate, thus evolving new forms of the virus that have thus far remained undiscovered. This in turn has varying implications for the pathogenicity of the virus (Anderson et al., 1996). HIV-2 has been observed to have a longer period of incubation and a lower rate of the manifestation of full-blown AIDS. These observations have led researchers to assume that HIV-2 has a lower pathogenicity than HIV-1 (Kanki et al., 1994).

The disease began to capture the attention of medical researchers in the United States in California, and in New York during the early 1980s (Schvaneveldt et al., 1990). Once a person becomes infected with HIV, the full range of AIDS symptoms can manifest themselves in a few years. The chief impact of this is that the patient's immune system weakens, leaving him or her vulnerable to a host of devastating consequences (Benokraitis, 1993). Since the discovery of the AIDS-causing virus HIV in the 1970s, more than 47 million individuals have been reportedly infected by it, and an estimated 14 million have died of the disease AIDS ("AIDS in the Third World: A Global Disaster," 1999).

## Prevalence of AIDS

Research suggests that if HIV/AIDS is allowed to continue unchecked in its present course, by the year 2020, it would become the single largest viral cause of mortality among adults (Squire, 1998). The epidemic is rapidly sweeping across many nations in several continents. A description of the trends of AIDS prevalence in some continents follows.

### Prevalence of AIDS in Africa

AIDS is assuming the proportions of a plague in Africa, even as it has become more rampant on this continent than in any other place in the world, and has become increasingly difficult to check (Thomas, 1996). A significant amount of research has been generated about the prevalence of AIDS, and evaluation of prevention programs (Hunt, 1996; Killewo, Sandstrom, & Dahlgren, 1997). Researchers suggest that more than 20 million people have fallen prey to HIV/AIDS in Sub-Saharan Africa. The countries that have been the most affected by the disease are Uganda, Rwanda, Burundi, Western Kenya, Western Tanzania, parts of Eastern Zaire, Malawi, Zambia, Zimbabwe, and Botswana (Oppong, 1998). The predominant subtypes of HIV in Sub-Saharan Africa are subtypes A, C, and D (Anderson et al., 1996). The spread of the virus is associated with several factors in these countries. For example, in the country of Botswana, the high rates of HIV infection have been attributed to patterns of migration, and to women's disadvantageous positions in the manipulation of sexual relationships (MacDonald,



1996). Research examining the spread of the epidemic in the countries of Gambia, Ghana, and Rwanda suggests a need for urgent and radical prevention programs in the continent (Da-Costa, 1994; Keogh, Allen, & Almedal, 1994; Latham, 1993; Oppong, 1998).

#### Prevalence of AIDS in Asia

The number of cases of AIDS is rapidly increasing throughout Asia, where the largest populations of the world reside. HIV-1 is the dominant form of HIV prevalent in Asia. Specifically, subtype E of the virus, associated with heterosexual transmission, predominates in this continent (Day, 1996). Studies suggest that AIDS has assumed epidemic proportions in China, even as it has spread rapidly across the mainland; there is a desperate need to combat ignorance and spread awareness about AIDS in this country (Cui, 1994; Gil, 1994). In Thailand, once reported as having one of the highest rates of heterosexually transmitted AIDS (Lindauer, Schvaneveldt, & Young, 1993), the rate of new infections has fallen drastically due to public education programs promoting safer sexual behavior (Glausiusz, 1997). India is now becoming increasingly aware of the threat of the epidemic, even as the World Health Organization estimates a population of three to five million HIV positive cases in the region ("India Wakes Up to AIDS," 1998). Estimates suggest that these are the highest number of cases in any single Asian country (Glausiusz, 1997). The rate of the spread of HIV/AIDS in Indonesia is also high, and the main mode of transmission is through prostitution (Fajans, Ford, & Wirawan, 1995).

Prevalence of AIDS in Europe, Australia,  
and North America

Research on the prevalence of AIDS in several countries of Europe, the modes of its transmission, and the effectiveness of prevention programs indicates that the main causes of the spread of AIDS in Europe are homosexuality and intravenous drug abuse (Brancato, Perucci, & Abeni, 1997; Bruckova & Jedlicka, 1995; Lewis, 1997; Loytonen, 1994; Pant & Soellner, 1997; Wang, Rodes, & Blanch, 1997). Subtype B of HIV-1 is predominant in this continent (Anderson et al., 1996). The rates of HIV infection have begun to stabilize in Australia and the United States (Glausiuz, 1997). The latest trend in the United States' AIDS pattern is a reduction of the number of AIDS deaths due to an improvement in medical facilities available to combat the disease (Benokraitis, 1993). There has also been a decline in the rate of new HIV infections on account of a large number of AIDS-education programs that target populations at risk of contracting HIV (Glausiuz, 1997). As in Europe, Latin America, and Australia the subtype B of HIV-1 is rampant in North America (Anderson et al., 1996). The main modes of transmission of HIV infection in the United States appear to be through intravenous drug abuse, and through homosexuality, as well as bisexuality. Heterosexual transmission has also become a major route for the spread of HIV. As a result of this, the number of women infected with HIV has increased. The percentage of HIV-infected women has risen from 6% of reported cases in 1985 to 19% in 1995 (Glausiuz, 1997).

## World Patterns of AIDS

Research indicates that the incidence of AIDS in the different countries of the world can be categorized in terms of three patterns. In pattern one are included nations with a high level of AIDS, transmitted mostly through intravenous drug use and homosexual activity. Included in this category are the United States, Western Europe, and some regions of South America. In the pattern two nations, there are again high levels of AIDS. Included in this category are East and Southeast Asia, and Sub-Sahara Africa. The primary mode of transmission here is through heterosexual activity. The levels of the epidemic are high in these regions, and exhibit signs of rapid increase. The countries that exhibit pattern three are those in Northern Africa and the Eastern Mediterranean region. The mode of transmission is through a combination of drug use and heterosexual activity (Schvaneveldt & Al-Mahmood, 1996). These countries exhibit the lowest rates of HIV/AIDS.

At the close of the 1980s, public health officials in the United States of America believed that AIDS would be one of the greatest health risks faced by urban adolescents belonging to minority groups in the coming decades (DiClemente, Boyer, & Morales, 1988). Events in the U.S., as well as in other nations of the world, have not only corroborated this prediction, but have also taken yet another dimension. Unprecedented amounts of research have been generated by governments and international organizations in order to understand the disease and its mode of transmission, as well as to combat its deadly impact. Research suggests that, while the efforts of health workers in many parts

of the world have dramatically increased public awareness of AIDS and its spread, as well as the treatment available to mitigate its symptoms, the gains have been few, and the losses many; the crisis continues to follow humanity, and is likely to do so well into the 21<sup>st</sup> century (Norton, 1990). Traditionally, the spread of AIDS has been associated with homosexuality and intravenous drug abuse (Cameron & Yang, 1991; Carey, 1998; Des-Jarlais, Choopanya, & Vanishseni, 1997; Hewitt, 1998; Kahan & Mulryan, 1996; Lewis, 1997; MacKellar, Valleroy, & Karon, 1996; Norton, 1990; Schvaneveldt et al., 1990; Smereck & Hockman, 1998; Wang et al., 1997). However, the disease has now spread its tentacles, and many other subgroups of the population have been infected with AIDS (Flora & Malbach, 1990). Although AIDS in the U.S. is primarily associated with homosexuality and drug abuse, research indicates that a large number of individuals with AIDS have also been infected heterosexually (Benokraitis, 1993).

Research has focused on several of these subgroups, believed to be at high risk of HIV infection. Adolescents, accordingly, have received specific attention from researchers (Harvey & Spigner, 1995; Krauss, 1997). College-age individuals are also seen as potential victims of AIDS, to the extent that they may be involved with multiple sexual partners (Cline, Freeman, & Johnson, 1990). Women, especially from minority communities in the U.S., are seen to be at a greater risk of contracting AIDS (Centers for Disease Control, 1991; Glausiusz, 1997). Several nations report a higher incidence of HIV infection among women, when compared to men. Some research has been directed towards understanding

the issues faced by elderly persons suffering from AIDS (Gordon & Thompson, 1995; Terpenning, 1998).

A subgroup that takes precedence over all others, simply because of its vulnerability to, and helplessness in the face of this disease, is that of children. Pediatric AIDS is becoming a source of increasing concern for public health officials in the U.S. and the rest of the world, because of a sharp increase in its number of reported cases (DaDesky, 1990; Frank, Foley, & Kuchuk, 1997). The most common way in which children contract AIDS is prenatally, that is, from a mother to the fetus in her uterus. Research has focused on HIV transmission from mothers to their infants (Goedert & Cote, 1994; Kuhn, Stein, & Thomas, 1994). Some research has even been generated on understanding the cognitive functioning of school-age children infected with HIV (Frank et al., 1997).

Moreover, attention has been paid to the development and use of educational materials that can help caretakers of HIV infected children to meet some of these children's psychosocial needs (Norton, 1990). It is clear that this epidemic has become a tragic part of the lives of millions of children over the world. Even those who are safe from its threat are exposed to a world that has become aware of the danger it faces. The fear, trauma, and stigma associated with AIDS is unmistakably communicated to children, often without a logical explanation about the facts about its causes and effects, or a real understanding about who is likely to contract it. In addition, many children face the possibility of having peers who are infected with the disease, while they are unaware of

how to enjoy the company of these individuals while taking sensible precautions for their own safety. Further, as young people are becoming more sexually active at younger ages, they face the danger of becoming victims of the AIDS epidemic. All of these issues underscore the necessity of communicating information about AIDS with young children. Research focusing on male adolescents' knowledge about sexually transmitted diseases (STDs) in India has suggested that knowledge of AIDS is positively associated with parental education (Sharma, Sharma, Dave, & Chauhan, 1996). Further, knowledge about AIDS has been found to be related to gender. In a study conducted in the U.S., it was found that juvenile delinquent females possessed less objective knowledge about HIV/AIDS than males (Lanier & Sloan, 1996).

There is a serious dearth of research that examines what young children know about AIDS, and the role played by their parents and by the education system in informing them about the issues related to it. Research conducted in the U.S. suggests that even young children display a remarkable awareness of AIDS, its causes and symptoms, if given adequate scientific explanations, a finding that has important implications for parents and educators (Sigelman, Derenowski, & Woods, 1996). Would these findings be applicable in other cultures, which have differing rates of AIDS prevalence? A study conducted in the U.S. (Schvaneveldt et al., 1990), and a replication of it in Thailand (Lindauer et al., 1993), examines this issue. The results of these studies indicate that there exist certain marked differences between children of different age groups with regard to their knowledge of AIDS. However, these age-related differences are greater among the

children in the U.S. than among the children in Thailand. This finding could be attributed to the fact that AIDS is a very serious concern in Thailand, and consequently receives a great deal of attention from both the government and individuals alike.

This study was a replication of the studies conducted in the U.S., and in Thailand, and was conducted in the Arabian Gulf. Significantly, the Islamic nations in this region belong to the pattern three group of nations where AIDS is spread through a combination of intravenous drug use and heterosexual activity (Schvaneveldt & Al-Mahmood, 1996). The levels of HIV infection in these nations tend to be low. This finding has been attributed to stringent moral codes governing Islamic societies. These codes regulate sexual activity and forbid casual sexual contact, homosexuality, prostitution, and drug abuse. However, researchers suggest that these societies may be in a stage of denial, and that the magnitude of the epidemic in these countries may be above official estimates. This denial may simply be on account of a reluctance on the part of government officials to recognize the existence of activities within their society that are illegal and strictly forbidden in Islam (Tastemain & Coles, 1993). Consequently, there may be a restriction in terms of the amount of information that is shared with children about HIV/AIDS.

Researchers suggest that Islamic codes form an apparently restrictive barrier against the spread of AIDS, even as studies indicate that in some African countries such as Senegal and Cote d'Ivoire, the number of non-Muslims who were infected with HIV was twice that of the Muslims who were also infected (Tastemain & Coles, 1993).

Specifically, researchers suggest that this occurs in two ways: through strict codes against sexual promiscuity, and norms advocating the practice of circumcision (Oppong, 1998). However, it must be noted that these factors fail to act as buffers in other Islamic nations, such as Indonesia, where the rates of HIV/AIDS prevalence are high.

Research suggests that the Islamic nations of the Arabian Gulf face a growing threat in coming decades. Research indicates that the levels of HIV infection are likely to increase with time (Schvaneveldt & Al-Mahmood, 1996). In 1993, it was estimated that a total of approximately 10,000 persons in the Middle East and in North Africa were suffering from full-blown AIDS, and that in total 75,000 persons were infected with HIV in these regions (Tastemain & Coles, 1993). Recent estimates suggest a total of around 200,000 HIV-infected persons in these regions (Glausiusz, 1997). Research examining the awareness of AIDS among male adolescents, in the area of Asir, Saudi Arabia, indicated that the level of knowledge about AIDS was quite low for the population studied (Abolfotouh, 1995). However, there is a lack of research linking awareness of AIDS in children to a developmental pattern in the Middle-East region.

This study explored if the children in the Arabian Gulf were similar in terms of their knowledge of AIDS, when compared to the children tested earlier in the U.S. and in Thailand. In these studies it was found that accurate knowledge about AIDS-related information, such as cause, outcome, prevention, possible treatment, and persons at risk, was directly related to the age of the child. Older children had more accurate information than did younger children. Most of the children had heard of the disease before and knew



that its outcome is death. Further, most of the children reported that the media were their primary source of information about AIDS (Lindauer et al., 1993; Schvaneveldt et al., 1990). Accordingly, the null hypotheses generated and tested in this study were:

1. There is no statistically significant relation between age and children's knowledge and awareness of the disease AIDS. That is, there are no statistically significant differences between older and younger children in terms of their awareness about the AIDS epidemic and its causes.

2. There are no statistically significant differences between males and females in terms of their knowledge about AIDS.

3. There is no statistically significant relation between paternal education and children's knowledge about AIDS. That is, there are no statistically significant differences between the children of highly educated and less educated fathers in terms of their knowledge about AIDS.

4. There is no statistically significant relation between maternal education and children's knowledge about AIDS. That is, there are no statistically significant differences between the children of highly educated and less educated mothers in terms of their knowledge about AIDS.

In addition, the following research question was generated to explore the sources of children's knowledge and awareness of AIDS.

1. What are the major sources of information contributing to a child's knowledge about AIDS?

## CHAPTER III

### METHODS

#### Sample

The study was conducted in the nation of Bahrain in the Arabian Gulf region. The data for this study came from a group of children in the region of Manama. Specifically, the respondents were drawn from two government schools in Manama. The data were collected in May 1996, from 99 children belonging to these two schools. In the sample, 14 children (10 females) were 6 years old (14.1%), 15 (5 females) were 7 years old (15.2%), 8 (6 females) were 8 years old (8.1%), 20 (9 females) were 9 years old (20.2%), 17 (8 females) were 10 years old (17.2%), 23 (12 females) were 11 years old (23.2%), and two (1 female) were 12 years old (2%). The median age of all the children in the sample was 9 years.

To determine age-related differences in knowledge of AIDS among the children, the sample was divided into two groups, those above the median age 9 and those at or below this age. Children from a girls' and a boys' elementary school were interviewed. Forty-eight (48.5%) of the respondents were males and 51 (51.5%) were females. The educational levels of the respondents' parents were also ascertained. Among their fathers, 11 (11.1%) had received a secondary education or less and 43 (43.4%) had received some college education, up to a graduate degree. Forty-five (45.4%) children did not know their

fathers' highest level of education. Among their mothers, 22 (22.2%) had received a secondary education or less and 34 (34.3%) had received a graduate degree or less. Forty-three (43.5%) children did not know their mothers' highest level of education. All the interviewers were second-year nursing students in the College of Health Sciences, and were trained in the use of the instrument and in the purposes of the research by the principal investigator.

### Design

The design of this study may be described as exploratory, since its primary purpose is to explore the issue of AIDS awareness among children and how it changes with age. In a sense, it could also be described as a cross-sectional design, where the investigator is studying children of different ages, examining changes in their perceptions and knowledge of AIDS across age.

### Selection

The sample used in this study was a nonprobability convenience sample. To a degree, it was a purposive sample where the researchers wanted respondents belonging to certain age groups, since this study is an examination of differences in children's attitudes and awareness across age. Therefore, the children were chosen from the first, third, and fifth grades. The respondents were also chosen on the basis of a certain gender distribution since the researchers were desirous of obtaining data from both boys and

girls. Most Islamic societies segregate the sexes from a very early age; consequently there are separate schools for boys and for girls. Therefore, respondents were drawn from a boys' school and from a girls' school. In this study, the proportion of boys chosen as respondents was equivalent to the proportion of girls chosen. Teachers in both schools were female. It must be noted that, while boys and girls study in separate schools, they both live in a predominantly female world once they enter school.

### Measurement

Because this study is a replication of studies conducted in the United States and in Thailand by the same team of researchers, the instrument used for this particular study was the same as the one used in the earlier studies. The instrument was devised by the researchers who were involved in the earlier research specifically for purposes of the study. This instrument is in the form of a standardized interview consisting of two sections. The first section of the interview consists of nine questions pertaining to demographic information about the children. The second section consists of fourteen questions that measure the children's awareness of AIDS and its causes and prevention. Six of the questions in the second section were open-ended. This section was designed by the researchers at a level easily comprehensible to children between the ages of 4 and 11. The key goal of this section was visualized as the exploration of what a child actually knows about the AIDS epidemic, what the sources of his or her knowledge were, what he or she knows about the causes of the epidemic, the possible means of prevention, the

persons most likely to contract it, the outcomes of contracting it, the possible treatment of such persons, and the level of accuracy of a child's knowledge. For example, a child was asked "What do you know about AIDS?" or "What causes AIDS?" Some questions were also designed to explore any possible fears that a child may have of the disease. The interview was designed to be simple and easily understood by young children. The independent variables were age, gender, and parents' level of education. A copy of the instrument is included in the Appendix.

#### Reliability and Validity

Because this study is a replication of two earlier studies, reliability and validity of the instrument were established by the researchers in the first study, conducted in the United States. Before it was actually used in that study, the instrument was reviewed by three experts from the fields of Family Studies and Child Development. Agreement among the three was required in order to add, delete, or modify any item on the interview. Pilot testing was conducted on 30 children randomly selected from a population of children between the ages of 4 and 12, belonging to the schools from which the samples were drawn for the actual study. Minor changes were made after the pilot test. Pilot testing was also conducted before the instrument was administered in the study conducted in Bahrain. In addition, faculty members involved in the study reviewed the instrument to ensure that it was culturally appropriate. The reliability of the instrument was measured under the category of measures of equivalence. Specifically the instrument was measured

for internal consistency using coefficient alpha. The scored items that were included on the refined instrument had a Cronbach's alpha of .91 (Schvaneveldt et al., 1990).

In this study, the instrument primarily has face validity, since it is based on the judgment and experience of the experts who were involved in designing it. Further, since it is a replication of studies in which empirical findings about children's awareness of AIDS confirmed Piagetian principles of development, it may be said to have construct validity. The interview and instrument functioned at a level of soliciting responses that would classify the subsequent data as being either nominal or ordinal in nature.

#### Data Collection Procedures and Ethical Considerations

After obtaining written permission from the Ministry of Education, appointments were made with the two elementary schools. All the children were subjected to a standardized interview by trained interviewers in the schools, in a scheduled room, and during regular school hours. Each interview session lasted between 8 and 10 minutes. The items on the interview were translated into Arabic, and the children were interviewed in Arabic. Their responses were then translated into English. Interviewers were proficient in English and Arabic. They were instructed to present the questions in the wording and order in which they appeared on the instrument. The data were collected after obtaining consent from the parents of the children. Assent was obtained from children over the age of 6. Every effort was made to ensure that parents had no objections to their child's participation in the study, since AIDS awareness is a

sensitive issue, and Islamic societies are circumspect in their attitudes related to communication about sexual matters with young children. The interviewers were carefully trained, and given written instructions on the copy of the actual interview, to be polite to the child, to refrain from coercing him or her in any way into answering any question, to be courteous, to thank the child at the end of the interview, and to ensure in every possible way that the child felt comfortable while answering questions. The interviewers were also instructed to write down children's answers immediately, before proceeding to the next question, in order to minimize the possibility of errors in recording answers. All the teachers and support personnel involved in the data collection process were female. Participants in both schools were receptive and enthusiastic about the research goals.

#### Data Transformation and Analysis

The responses obtained in the interviews with each child were reduced by coding the responses. Five questions in the second section required answers only in the form of a "Yes," or a "No." On these questions, the answers were coded as 0 and 1, respectively. One question pertained to where the child had heard the word AIDS before. The answers were coded as 0, if the child had no knowledge of the item; 1, if he/she had heard the word at home; 2, if he/she had heard it at school; 3, if he/she had heard it through the mass media; and 4, if he/she had heard it through some source other than these. One question focused on the child's fear of someone in his/her family getting AIDS. The answers were

coded as 0, if the child had no knowledge of the item; 1, if the child feared that his/her general family would contract AIDS; 2, if the child was afraid for his/her extended family; 3, for his/her father; 4, for his/her mother; 5, for his/her brother; 6, for his/her sister; 7, for his/her friends; and 8, if the child was fearful for anyone other than those mentioned.

Of the seven questions that remained, six were in the form of open-ended questions, directly related to the children's level of awareness and knowledge of AIDS. On these items, the children's responses were coded as 0, if they had no knowledge of the item; 1, if their responses were inaccurate; and, 2, if they were accurate. The children's responses to these six questions were summed up to obtain a total score for each child. The level of the child's understanding of AIDS is understood in terms of the score; a higher score means higher level of awareness when compared to a lower score.

The data obtained in this study were entered into a computer program that analyzes statistics in social sciences (SPSS) using the codes mentioned earlier. The variables were named in such a manner as to make what they represented easily identifiable. For example, the first question in the second section of the interview, "Have you heard the word AIDS before?" was represented by the variable "hearAIDS." Once the variables were created, the data were entered into the program in the form of the codes devised.

The data were analyzed using descriptive statistics, including measures of central tendency, frequency distributions, correlational analyses, and  $t$  tests. Since the aim of statistical operations in research is to reduce large amounts of data to manageable forms



that lend themselves easily to analyses, the goal was to use statistically reduced data to describe the level of awareness of AIDS among the children belonging to the two government schools in the city of Manama, Bahrain. Specifically, the goal of the statistical analyses was to test the null hypotheses that were generated.

## CHAPTER IV

## RESULTS

## Differences in Knowledge About AIDS as Related to Age

To determine age-related differences in knowledge of AIDS, *t* tests were conducted. The scores of children above the sample's median age of 9 were compared to those of children at or below that age (see Figure 1). Statistically significant differences were found between the two groups of children,  $t(93) = 3.57, p < .05$  (see Figure 2). Older children ( $M = 4.00$ ) scored higher than younger children ( $M = 2.94$ ). Therefore, the null hypothesis that there are no statistically significant differences between older and younger children in terms of their awareness about the AIDS epidemic and its causes was rejected.

Correlational analyses were used to explain the relation between age and AIDS-related knowledge. Statistically significant correlations were found between age and knowledge about AIDS,  $r(97) = .39, p < .05$ . Approximately 15% of the variability in the respondents' knowledge about AIDS was explained by age.

## Differences in Knowledge About AIDS as Related to Gender

To determine the differences between male and female respondents' knowledge about AIDS, *t* tests were used. Mean scores of boys were compared with those of girls (see Figure 2). Statistically significant differences were found between the two groups,

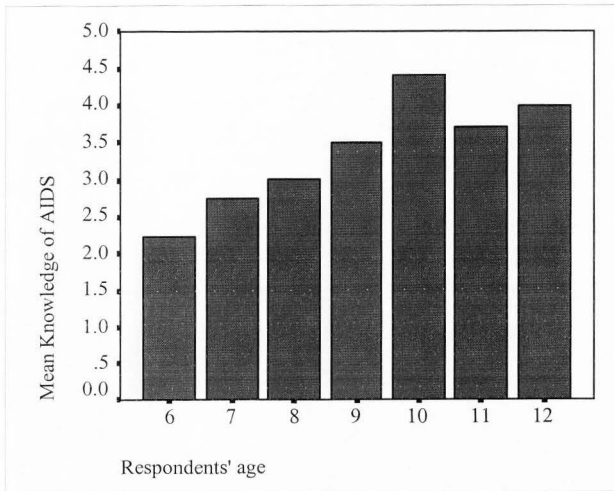


Figure 1. Differences among children between the ages of 6 and 12 in terms of knowledge about AIDS.

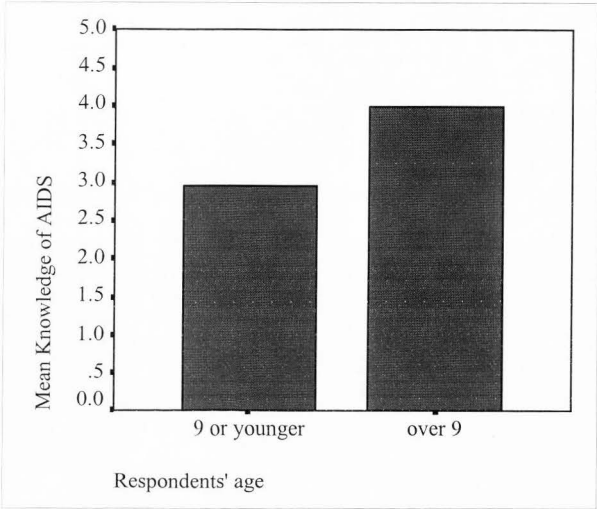


Figure 2. Differences among older and younger children in terms of knowledge about AIDS.

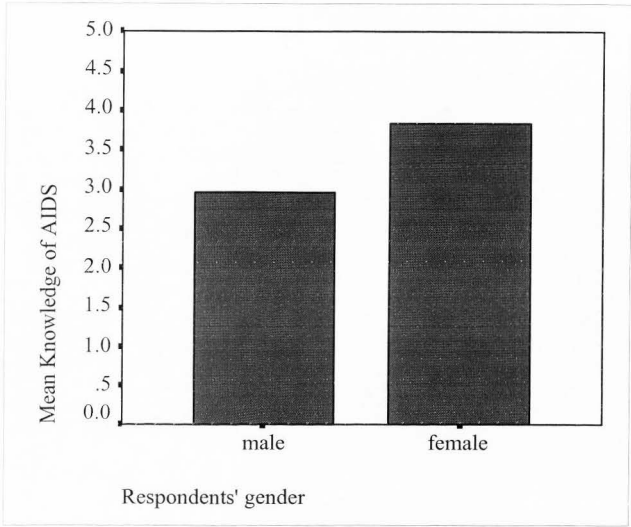


Figure 3. Differences among males and females in terms of knowledge about AIDS.

$t(93) = 2.93, p < .05$ . Females ( $M = 3.84$ ) scored almost a full point higher than males ( $M = 2.96$ ). Therefore, the null hypothesis that there are no statistically significant differences between males and females in terms of their knowledge about AIDS was rejected.

Correlational analyses were generated to examine the relation between gender and knowledge about AIDS. Statistically significant correlations were found between gender and knowledge about AIDS,  $r(97) = .29, p < .05$ . Approximately 8% of the variability in respondents' knowledge was explained by gender. To control the possibility that the relation between gender and knowledge about AIDS was accounted for partly by age, partial correlational analyses, controlling for age, were generated. Statistically significant correlations were found between gender and knowledge about AIDS, controlling for age,  $r(97) = .34, p < .05$ . Approximately 11% of the variability in respondents' knowledge was explained by gender, controlling for age.

#### Differences in Knowledge About AIDS as Related to Paternal Education

To determine differences in children's knowledge about AIDS based on their fathers' highest levels of education,  $t$  tests were conducted. Mean scores of children whose fathers had received some college education were compared with those of children whose fathers had received some secondary education or less. There were no statistically significant differences between children having highly educated and less educated fathers,  $t(51) = .27, p > .05$ . Therefore, the null hypothesis that there are no statistically

significant differences between the children of highly educated and less educated fathers in terms of their knowledge about AIDS was not rejected.

Correlational analyses were used to determine the relation between fathers' highest levels of education and children's knowledge about AIDS. There were no statistically significant correlations between paternal education and knowledge about AIDS,  $r(97) = -.04$ ,  $p > .05$ . Approximately .2% of the variability in respondents' knowledge about AIDS was explained by fathers' highest levels of education.

#### Differences in Knowledge About AIDS as Related to Maternal Education

To determine differences in children's knowledge about AIDS based on their mothers' highest levels of education,  $t$  tests were conducted. Mean scores of children whose mothers had received some college education were compared with those of children whose mothers had received some secondary education or less. There were no statistically significant differences between the two groups of children,  $t(53) = .66$ ,  $p > .05$ . Therefore, the null hypothesis that there are no statistically significant differences between the children of highly educated and less educated mothers in terms of their knowledge about AIDS was not rejected.

Correlational analyses were used to determine the relation between mothers' highest levels of education and children's knowledge about AIDS. There were no statistically significant correlations between maternal education and knowledge about

AIDS,  $r(97) = -.09$ ,  $p > .05$ . Approximately .8% of the variability in respondents' knowledge about AIDS was explained by mothers' highest levels of education.

#### Sources of Knowledge About AIDS

Frequency distributions were generated to explore the different sources of the respondents' knowledge about AIDS. Children had the option of indicating more than one source of information among the various possible ones. There were 153 responses in all (22 missing cases, 77 valid cases). Forty-one (26.8%) children indicated that they had heard the word AIDS mentioned on T.V. Thirty-one (20.3%) indicated that they had heard about AIDS from their teachers. Sixteen (10.5%) children reported that they had heard about AIDS on the radio. Sixteen (10.5%) children reported that they had heard their fathers talk about AIDS. Twelve (7.8%) children had heard their mothers talk about AIDS. Nine (5.9%) children had heard friends talk about AIDS. Three (2%) children reported hearing about AIDS from their siblings. Twenty-five (16.3%) children said they had heard about AIDS from a source along with and apart from these (see Figure 3).



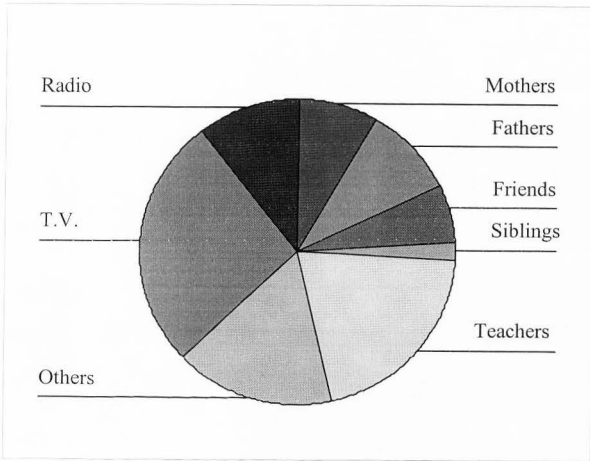


Figure 4. Sources of children's knowledge about AIDS.

## CHAPTER V

## DISCUSSION

The purpose of this study was to examine knowledge about AIDS among young children in the Arabian Gulf. Specifically, the relations among age, gender, parental education, and children's knowledge about AIDS were studied. In addition, the various sources of their information were examined.

In order to examine the relation between age, gender, parental education, and knowledge about AIDS, the following null hypotheses were generated:

1. There are no statistically significant differences between older and younger children in terms of their awareness about the AIDS epidemic and its causes.
2. There are no statistically significant differences between males and females in terms of their knowledge about AIDS.
3. There is no statistically significant relation between paternal education and children's knowledge about AIDS. That is, there are no statistically significant differences between the children of highly educated and less educated fathers in terms of their knowledge about AIDS.
4. There is no statistically significant relation between maternal education and children's knowledge about AIDS. That is, there are no statistically significant differences between the children of highly educated and less educated mothers in terms of their knowledge about AIDS.

In addition, the following research question was generated to explore the sources of children's knowledge and awareness of AIDS.

1. What are the major sources of information contributing to a child's knowledge about AIDS?

The instrument was in the form of a standardized interview. It contained nine questions which ascertained demographic information about the children, four questions which examined the sources of children's knowledge about AIDS, two questions which examined children's fears that they or their families would contract AIDS, and eight questions which examined children's factual knowledge about AIDS. The interview was administered to 99 children belonging to two government schools in Manama, Bahrain. The sample contained children between the ages of 6 and 12. There were 48 males and 51 females in the sample.

#### Differences in Knowledge About AIDS as Related to Age

Knowledge about AIDS is related to age. As confirmed by *t* tests, there was a difference between the average scores of children belonging to different age groups. The relation between age and knowledge about AIDS was further confirmed by correlational analyses. Older children had a higher level of accurate knowledge about AIDS, its causes, its outcomes, the modes of preventing it, the possible treatment of AIDS patients, and the persons most likely to contract AIDS.

These findings are consistent with previous research, which found that there is a direct relation between age and knowledge about AIDS. Lindauer et al. (1993) found that older children had a more accurate understanding about the disease than did younger children. Perrin and Gerrity (1981) studied children's understanding of diseases and found that children's understanding about diseases is consistent with Piagetian notions of development, which suggest that older children are better informed about sickness and contagion than are younger children. In this study, children (aged 8, 9, and 10) who are probably near or at the stage of concrete operations have a more logical and sophisticated understanding of AIDS than do children (aged 6 and 7) who are probably at the preoperational stage. Surprisingly, children (aged 11 and 12) who are theoretically at the stage of formal operations displayed less accurate knowledge about AIDS when compared to those aged 9. The small number of 12-year-old children in this study ( $N = 2$ ) may account in part for some of these findings. The possible contribution of cohort effects and gender to these findings should also be noted.

In general, however, Piagetian notions of children's understanding of diseases were upheld by the findings of this study. Older children had more factual and logical explanations for the causes and outcomes of HIV/AIDS transmission than did younger children. For example, 6- and 7-year-olds were likely to believe that AIDS is caused by shaking hands, or by sharing toilet seats. Older children, on the other hand, had more factual ideas about the causes of AIDS; several older children stated that AIDS is spread through sexual contact, or by sharing needles. Similarly, several 6- and 7-year-olds were

likely to think that AIDS transmission was caused by wrong-doing; they expressed the opinion that the spread of AIDS could be prevented if people "would not do bad things." Older children, were more likely to state that AIDS transmission could be prevented through abstinence or safe sexual practices.

#### Differences in Knowledge About AIDS as Related to Gender

Knowledge about AIDS is related to gender. As confirmed by *t* tests, there was a difference between average scores of males and females. The relation between gender and knowledge about AIDS was further confirmed by correlational analyses. The relation between gender and knowledge about AIDS were even stronger, when age was controlled for. Females showed a higher level of accurate knowledge about AIDS than did males. It is important to note that, in Bahraini society, boys and girls live in situations of gender continuity, where they live in a female world at home and at school. Mothers and female teachers are primarily instrumental in imparting information about AIDS to them. This gender continuity works more beneficially for girls than for boys. The gender continuity within the culture, as reflected by the sample, could probably account for the finding that girls had more knowledge about AIDS than boys. These results differ from earlier findings among children belonging to a different culture and age group. Lanier and Sloan (1996) found that males possessed a higher objective knowledge about AIDS than females. The differences in findings can probably be accounted for by differences in samples. Other

probable reasons for these findings could be measurement variances and the gender continuity within the Bahraini culture.

#### Differences in Knowledge About AIDS as Related to Parental Education

There was no statistically significant relation between parental education and knowledge about AIDS. As indicated by  $t$  tests, the scores of children whose parents were highly educated were not statistically significantly different from those of children whose parents had received a secondary education or less. It should be noted that a considerable percentage of respondents were unaware of their mothers' or fathers' highest levels of education. This factor may serve as a possible cause for part of these findings. Correlational analyses revealed that very little of the differences in children's scores could be accounted for by parental education. These findings are dissimilar to earlier findings that suggest that children's knowledge about AIDS is related to parental education (Sharma et al., 1996).

It would seem logical that highly educated parents are far more likely to educate their children about AIDS and other STDs, than are less educated parents. Surprisingly, the results of the present study were contradictory to these observations. Although the differences were not statistically significant, mothers who were less educated were more likely to have children with higher levels of knowledge about AIDS than were mothers who were highly educated. Similarly, less educated fathers had children with higher knowledge scores than did highly educated fathers. These differences, although

statistically insignificant, were more dramatic among mothers than among fathers. In all, more women with less education had children with accurate knowledge about AIDS than any of the other groups.

Because the children in this sample belong to government schools, rather than to private schools in Bahrain, it is likely that many of them belong to rural and more traditional families. In Bahraini society, women are typically the primary socializers for their sons and daughters. Boys and girls grow up in a world of adult women. Boys associate with other boys mostly at school or at the mosque. This homogeneity is more prevalent in rural areas, where parents have lower levels of education, than in urban areas. Kin contacts are higher in villages than in urban areas. Rural mothers with lower levels of education loom as more potent in the lives of their children, as compared to urban mothers and fathers with more education. These factors may be a key to explaining these findings, as mothers in these settings may have greater impact in imparting information about AIDS to their children. This impact is not attributable to their educational status, but to their dominant role in socializing their children, and because of traditional connections.

#### Sources of Knowledge About AIDS

Children in this sample learned more about AIDS from the T.V. and the radio together than from any other source. Teachers were the next major source of information about AIDS. Fathers ranked as the next major source, followed by mothers. Friends were

the next major source, followed by siblings. In all, only 20% of the children heard about AIDS at home. These findings are similar to those of earlier studies examining sources of children's knowledge about AIDS. Schvaneveldt et al. (1990) found that a majority of the children in their sample had acquired information about AIDS from the media. In addition, most children had obtained their knowledge from sources outside their homes.

These findings indicate that children in various cultures obtain information about AIDS from sources outside the home. AIDS and other STDs are sensitive topics, and parents in many cultures may opt to refrain from discussing them with their children. The usefulness of the media and teachers in imparting information about AIDS to young children is noteworthy because of its implications for AIDS education programs.

#### Limitations

This study employed a convenience sample. Consequently, these results cannot be generalized to the entire nation of Bahrain in particular, or to the Arabian Gulf region, and other nations in general.

#### Implications for Public Policy on AIDS

The findings of the present study have implications for policymakers, educators, and researchers. Policymakers and health workers across the world who are concerned about the spread of HIV/AIDS among younger populations should take into account the tremendous potential of the media and school curriculum for spreading awareness about



AIDS among these populations. Public spending on AIDS education programs (particularly those targeting younger children), on the media and in schools, should be enhanced.

#### Implications for Education

Educators must be encouraged to develop reliable programs of AIDS education that are appropriate for very young children. The differential impact of gender and parental education on AIDS knowledge should be taken into account while devising such programs. Further, these programs need to recruit parents and families as the primary agents of socialization about HIV/AIDS for their children. Programs educating parents on how to communicate about AIDS with their children must become an integral part of AIDS education. The data suggest that parents and teachers working together can go a long way in increasing awareness about AIDS among young children in different countries.

#### Implications for Research

There is a need for more research focusing on young children's awareness about AIDS. The role of child development and parent education researchers in devising appropriate AIDS education programs should be acknowledged. Lindauer et al. (1993) suggested that the level of awareness about AIDS among children in Thailand was higher than that of children in the U.S., on account of concentrated public attention on the topic

in Thailand. Researchers need to pursue these findings, and explore whether various AIDS education programs translate into an actual reduction in HIV/AIDS among their target populations.

### Conclusion

In conclusion, the role of variables such as age, gender, and parental education in children's knowledge of AIDS must be recognized and exploited by parents, policymakers, educators, and researchers. Their concerted efforts, directed toward spreading AIDS awareness among young children, can make an important difference in arresting the spread of HIV/AIDS in the 21<sup>st</sup> century.

## REFERENCES

- Abolfotouh, M. A. (1995). The impact of a lecture on AIDS on knowledge, attitudes, and beliefs of male school-age adolescents in the Asir region of southwestern Saudi Arabia. Journal of Community Health, 20, 272-281.
- AIDS in the Third World: a global disaster. (1999, January 2). The Economist, 42-44.
- Anderson, R. M., Schwartzlander, B., McCutchan, F., & Hu, D. (1996). Implications of genetic variability in HIV for epidemiology and public health. The Lancet, 347, 1778.
- Benokraitis, N. V. (1993). Marriages and families: Changes, choices, and constraints. Upper Saddle River, NJ: Prentice Hall.
- Berkley, S., Piot, P., & Schopper, D. (1994). AIDS: Invest now or pay more later. Finance and Development, 31, 40-43.
- Bibace, R., & Walsh, M. E. (1981). Children's conceptions of illness. In R. Bibace & M. E. Walsh (Eds.), Children's conceptions of health, illness, and bodily functions (pp. 31-48). San Francisco, CA: Jossey-Bass.
- Brancato, G., Perucci, C. A., & Abeni, D. D. C. (1997). The changing distribution of HIV infection: HIV surveillance in Lazio, Italy, 1985 through 1994. American Journal of Public Health, 87, 1654-1658.
- Bruckova, M., & Jedlicka, J. (1995). HIV/AIDS in the Czech republic. Journal of Community Health, 20, 183-184.
- Cameron, G. T., & Yang, J. (1991). Effect of support and personal distance on the definition of key publics for the issue of AIDS. Journalism Quarterly, 68, 620-629.
- Carey, M. A. (1998). GOP moves to bar funds for needle programs, offers anti-drug proposals. CQ Weekly, 56, 1159.
- Centers for Disease Control. (1991). Characteristics of parents who discuss AIDS with their children--United States, 1989. Morbidity and Mortality Weekly Report, 40, 789-791.

- Cline, R. J. W., Freeman, K. E., & Johnson, S. J. (1990). Talk among sexual partners about AIDS: Factors differentiating those who talk from those who do not. Communication Research, *17*, 792-808.
- Coyne, P. (1994). Dielectrics. New Statesman and Society, *7*, 31.
- Crain, W. (1992). Theories of development: Concepts and application. Englewood Cliffs, NJ: Prentice Hall.
- Cui, L. (1994, January 10). China strives against VD and AIDS. Beijing Review, *37*, 30.
- Da-Costa, P. (1994). AIDS in the Gambia. Africa Report, *39*, 52-53.
- DaDesky, A. C. (1990). Pediatric AIDS now considered a global threat as millions expected to become orphans. UN Chronicle, *27*, 69.
- Day, M. (1996). HIV "superstrain" edges into Britain. New Scientist, *151*, 4.
- Des-Jarlais, D. C., Choopanya, K., & Vanishseni, S. (1997). High HIV sero prevalence epidemics among injecting drug users; New York City and Bangkok. Journal of Drug Issues, *27*, 87-95.
- DiClemente, R. J., Boyer, C. B., & Morales, E. (1988). Minorities and AIDS: Knowledge, attitudes, and misconceptions among Black and Latino adolescents. American Journal of Public Health, *78*, 55-57.
- Fajans, P., Ford, K., & Wirawan, D. N. (1995). AIDS knowledge and risk behaviors among domestic clients of female sex workers in Bali, Indonesia. Social Science and Medicine, *41*, 409-417.
- Flora, J. A., & Malbach E. W. (1990). Cognitive responses to AIDS information: The effects of issue involvement and message appeal. Communication Research, *17*, 759-774.
- Frank, E. G., Foley, G. M., & Kuchuk, A. (1997). Cognitive functioning in school-age children with human immunodeficiency virus. Perceptual and Motor Skills, *85*, 265-272.
- Freimuth, V. S., Edgar, T., & Fitzpatrick, M. A. (1993). Introduction: The role of communication in health promotion. Communication Research, *20*, 509-516.

- Gil, V. E. (1994). Sinic conundrum: a history of HIV/AIDS in the People's Republic of China. The Journal of Sex Research, 31, 211-217.
- Glausiusz, J. (1997). The pandemic continues. Discover, 18, 28-29.
- Goedert, J. J., & Cote, T. C. (1994). Editorial-public health interventions to reduce pediatric AIDS. American Journal of Public Health, 84, 1065-1066.
- Gordon, S. M., & Thompson, S. (1995). The changing epidemiology of human immunodeficiency virus infection in older persons. Journal of the American Geriatrics Society, 43, 7-9.
- Harvey, S. M., & Spigner, C. (1995). Factors associated with sexual behavior among adolescents: a multivariate analysis. Adolescents, 30, 253-264.
- Hewitt, C. (1998). Homosexual demography: Implications for the spread of AIDS. The Journal of Sex Research, 35, 390-396.
- How AIDS began. (1998, February 7). The Economist, 81-82.
- Hunt, C. W. (1996). Social vs. biological: Theories on the transmission of AIDS in Africa. Social Science and Medicine, 42, 1283-1296.
- India wakes up to AIDS. (1998, January 2). The Economist, 50.
- Kahan, H., & Mulryan, D. (1996). Mending fences: Selling AIDS drugs to the gay community. American Demographics, 18, 42-45.
- Kanki, P. J., Travers, K. U., MBoup, S., Hsieh, C. C., Marlink, R. G., Gueye-NDiaye, A., Siby, T., Thior, I., Hernandez-Avila, M., Sankale, J. L., NDoye, I., & Essex, M. (1994). Slower heterosexual spread of HIV-2 than HIV-1. The Lancet, 343, 943-946.
- Keogh, P., Allen, S., & Almedal, C. (1994). The social impact of HIV infection on women in Kigali, Rwanda: A prospective study. Social Science and Medicine, 38, 1047-1053.
- Killewo, J., Sandstrom, A., & Dahlgren, L. (1997). Communicating with the people about HIV infection risk as a basis for planning interventions: Lessons from the Kagera region of Tanzania. Social Science and Medicine,

45, 319-329.

- Kister, M. C., & Patterson, C. J. (1980). Children's conceptions of the causes of illness: Understanding of contagion and use of immanent justice. Child Development, 51, 839-846.
- Krauss, B. J. (1997). HIV education for teens and preteens in a high-seroprevalence inner-city neighborhood. Families in Society, 78, 579-591.
- Kuhn, L., Stein, Z., & Thomas, P. A. (1994). Maternal-infant HIV transmission and circumstances of delivery. American Journal of Public Health, 84, 1110-1115.
- Lanier, M. M., & Sloan, J. J. (1996). Cynicism, fear, communication, and knowledge about acquired immuno deficiency syndrome among juvenile delinquents. Crime and Delinquency, 42, 231-243.
- Latham, M. C. (1993). AIDS in Africa: A perspective on the epidemic. Africa Today, 40, 39-53.
- Lewis, R. (1997). An overview of injecting drug use and HIV infection in Edinburgh, Scotland--Maximizing benefit and minimizing harm. Journal of Drug Issues, 27, 43-56.
- Lindauer, S.L.K., Schvaneveldt, J.D., & Young, M.H. (1993, March). Understanding AIDS: A comparison of the children in the U.S. and Thailand. Poster presented at Society for Research in Child Development, New Orleans, LA.
- Loytonen, M. (1994). Growth models and the HIV epidemic in Finland. Social Science and Medicine, 38, 179-185.
- MacDonald, D. S. (1996). Notes on the socioeconomic and cultural factors influencing the transmission of HIV in Botswana. Social Science and Medicine, 42, 1325-1333.
- MacKellar, D., Valleroy, L., & Karon, J. (1996). The Young Men's Survey: Methods for estimating HIV seroprevalence and risk factors among young men who have sex with men. Public Health Reports, 111, 138-144.
- Malbach, E. W., & Flora, J. A. (1993). Symbolic modeling and cognitive rehearsal: Using video to promote AIDS prevention self-efficacy. Communication

Research, 20, 517-545.

- Norton, R. (1990). The communication scholar in the AIDS crisis. Communication Research, 17, 733-742.
- Oppong, J. R. (1998). A vulnerability interpretation of the geography of HIV/AIDS in Ghana, 1986-1995. The Professional Geographer, 50, 437-448.
- Pant, A., & Soellner, R. (1997). Epidemiology of HIV in intravenous drug users and public health policy in Germany. Journal of Drug Issues, 27, 9-41.
- Perrin, E. C., & Gerrity, P. S. (1981). There's a demon in your belly: Children's understanding of illness. Pediatrics, 67, 841-849.
- Piaget, J. (1924). Judgement and reasoning in the child. Savage, MD: Littlefield, Adams, and Co.
- Piaget, J. (1932). The moral judgement of the child. New York: Free Press.
- Piaget, J. (1936a). The origins of intelligence in children. New York: International Universities Press.
- Piaget, J. (1936b). The construction of reality in the child. New York: Ballantine Books.
- Piaget, J. (1946). Play, dreams and imitation in childhood. New York: Norton.
- Piaget, J. (1960). The child's conception of physical causality. Patterson, NJ: Littlefield Adams.
- Piaget, J. (1964). Six psychological studies. New York: Vintage Books.
- Piaget, J. (1970). Piaget's theory. In P. H. Mussen (Ed.), Carmichael's manual of child psychology (pp. 703-732). New York: Wiley.
- Piaget, J., & Szeminska, A. (1941). The child's conception of number. New York: Norton.
- Schvaneveldt, J. D., & Al-Mahmood, H. (1996, November). Children's awareness and knowledge of AIDS in the Arabian Gulf: A developmental perspective. Paper presented at the National Council of Family Relations

Annual Conference, Kansas City, MO.

- Schvaneveldt, J. D., Lindauer, S. L. K., & Young, M. H. (1990). Children's understanding of AIDS: A developmental viewpoint. Family Relations, *39*, 330-335.
- Sharma, V., Sharma, A., Dave, S., & Chauhan, P. (1996). Sexual behavior of adolescent boys--a cause for concern. Sexual and Marital Therapy, *11*, 147-151.
- Siegal, M. (1988). Children's knowledge of contagion and contamination as causes of illness. Child Development, *59*, 1353-1359.
- Sigelman, C., Derenowski, E., & Woods, T. (1996). Mexican-American and Anglo-American children's responsiveness to a theory-centered AIDS education program. Child Development, *67*, 253-266.
- Smereck, G. A. D., & Hockman, E. M. (1998). Prevalence of HIV infection and HIV risk behaviors associated with living place: On-the-street homeless drug users as a special target population for public health intervention. American Journal of Drug and Alcohol Abuse, *24*, 299-319.
- Squire, L. (1998). Confronting AIDS. Finance and Development, *35*, 15-17.
- Szabo, G. (1997). Alcohol's contribution to compromised immunity. Alcohol Health and Research World, *21*, 30-38.
- Takahashi, L. M., & Smutny, G. (1998). Community planning for HIV/AIDS prevention in Orange County, California. Journal of the American Planning Association, *64*, 441-456.
- Tastemain, C., & Coles, P. (1993). Can a culture stop AIDS in its tracks? New Scientist, *139*, 13-14.
- Terpenning, M. (1998). AIDS in older people. Journal of American Geriatrics Society, *46*, 244-245.
- Thomas, T. (1996, September 7). No end of plagues. The Economist, 15-17.
- Thuriaux, M., & Cherney, S. (1997, January/ February). AIDS affects us all. World Health, 20-21.



Wang, J., Rodes, A., & Blanch, C. (1997). HIV testing history among gay/bisexual men recruited in Barcelona: Evidence of high levels of risk behavior among self-reported HIV+ men. *Social Science and Medicine*, *44*, 469-477.

## APPENDIX

## CHILDREN AND HEALTH

Age of child \_\_\_\_\_ Father's Occupation \_\_\_\_\_  
 Gender \_\_\_\_\_ Father's Highest Grade in School \_\_\_\_\_  
 Nationality \_\_\_\_\_ Mother's Occupation \_\_\_\_\_  
 Religion \_\_\_\_\_ Mother's Highest Grade in School \_\_\_\_\_  
 Total Number of Children in the Family, Including This One: \_\_\_\_\_

**Invite the child to listen carefully to each question as you read it. Do not push the child, but do make them feel comfortable so that they can respond to each item. Write their answers to each question before you go on to the next item. BE SURE TO THANK THEM.**

1. Have you heard the word AIDS before? Yes \_\_\_\_\_ No \_\_\_\_\_
2. Where did you hear this word? \_\_\_\_\_
3. Who have you heard say this word? (check all that apply — go through the list)
  - a. Mother \_\_\_\_\_ c. Grandparents \_\_\_\_\_ e. Brothers/Sisters \_\_\_\_\_ g. Other \_\_\_\_\_
  - b. Father \_\_\_\_\_ d. Friends \_\_\_\_\_ f. Teachers \_\_\_\_\_
4. Have you heard the word AIDS on T.V.? Yes \_\_\_\_\_ No \_\_\_\_\_
5. Have you heard the word AIDS on Radio? Yes \_\_\_\_\_ No \_\_\_\_\_
6. What do you know about AIDS? \_\_\_\_\_  
 \_\_\_\_\_
7. What causes AIDS? \_\_\_\_\_
8. What happens to people who get AIDS? \_\_\_\_\_  
 \_\_\_\_\_
9. Are you afraid of getting AIDS? \_\_\_\_\_
10. Are you afraid of someone in you family getting AIDS? \_\_\_\_\_ Who? \_\_\_\_\_  
 \_\_\_\_\_
11. What do people need to do so that they won't get AIDS? \_\_\_\_\_  
 \_\_\_\_\_
12. How can we help people who have AIDS? \_\_\_\_\_

13. Who do you think gets AIDS the most often, women or men? \_\_\_\_\_

14. Is there anything else that you would like to say about AIDS? \_\_\_\_\_

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**THANK THE CHILD AGAIN.**