

**The influence of Socio-economic and Demographic Factors on Knowledge, Attitude and
Behaviour Related to HIV/AIDS in Indonesia**

**An Analysis of Three Provinces: Papua, Bali
&
DKI Jakarta**

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Applied Population Studies Degree

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DECLARATION

I certify that this thesis does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due to reference is made in the text.

Adelaide, July 2010

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ABSTRACT

This study was carried out to identify the influence of several socio-economic and demographic factors on the Knowledge, Attitudes, and Behavior (KAB) regarding Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) of ever married women in Papua, Bali and DKI Jakarta, the three provinces in Indonesia with the highest prevalence rates of the virus. The research project was based on the 2007 Indonesia Demographic Health Survey (IDHS) datasets and the 2010 report from the Ministry of Health. This report stated that the level of prevalence of HIV/AIDS in Papua was the highest in Indonesia, followed by that of Bali and DKI Jakarta respectively.

Various socio-economic and demographic factors such as, education level, working status, wealth index, age of respondents, age at first intercourse, media exposure, access to condoms, access to information regarding HIV/AIDS, and religion all contributed to the extent of KAB relating to HIV/AIDS. Furthermore, external factors like culture, tourism, and migration had a significant impact up KAB in those three provinces selected.

In addressing the correlation between the selected predictor variables and KAB, the study implemented methods of analysis consisting of three different techniques: univariate analysis involving frequency distributions; bivariate analysis involving tests of association between the independent and the dependent variables; and multivariate analysis focusing on logistic regression analysis.

The results of the univariate analysis revealed that while most of the ever married women in DKI Jakarta who had the highest knowledge were fairly knowledgeable about HIV/AIDS transmission and its prevention compared to Papua and Bali, their sexual risk-taking behavior was still relatively high. Data found that the use of condoms during their last experience of sexual intercourse was very low in those three provinces.

A number of significant correlations were found both in bivariate and multivariate analyses. In the bivariate analysis, the ten variables identified had a significant correlation with those three dependent variables, even though their correlation varied for each province. The education level, age at first sexual intercourse, media exposure, access to condoms, and

access to information regarding HIV/AIDS were found to have a strong correlation with knowledge of HIV/AIDS. On the other hand, there were no variables identified in the analyses which had a significant association with attitude, except religion in Papua. Furthermore, the results showed that education level, wealth index, media exposure, access to condoms, and access to information regarding HIV/AIDS had an extremely high correlation with behaviour.

Two variables were identified as having a significant correlation in the multivariate analysis, namely, access to condoms and access to information regarding HIV/AIDS, while access to condoms was the only variable identified as having a strong correlation with behaviour in those three provinces. Surprisingly, no predictor variables had any significant correlation with attitude in the multivariate analysis.

The overall findings of this research indicated that HIV/AIDS knowledge alone did not determine sexual behavior; other factors worked to make women who were knowledgeable about the risks of HIV infection behave contrary to their knowledge. One of the possible explanations could be that several external factors, such as culture, tourism, and migration, influenced KAB concerning HIV/AIDS in those three provinces which had a high prevalence of HIV/AIDS. The study also found the predictor variables considered in this analysis had no correlation with attitude. However this study suggests that there are some external factors which could not be considered in this research because of lack of relevant information in the IDHS survey, may have strong influences in overall KAB.

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ABBREVIATIONS AND ACRONYMS

ABC	Abstain, Be faithful, Condomise
AIDS	Acquired Immune Deficiency Syndrome
BPS	Badan Pusat Statistik
CDC	Centre of Disease
CSW	Comersial Sex Workers
DHS	Demographic Health Survey
FSW	Female Sex Workers
HIV	Human Immuno-deficiency Virus
IDHS	Indonesia Demographic Health Survey
IDUs	Injecting Drug Users
KAB	Knowledge, Attitudes and Behavior
MSWs	Male Sex workers
NAC	National AIDS Commission
STD	Sexual Transmitted Diseases
SPSS	Statistical Package for the Social Sciences
TV	Television
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Programme
UNFPA	United Nations Fund for Population Activities
UNGASS	United Nations General Assembly Special Session
UNICEF	United Nations Children's Fund
USAIDS	United States Agency for International Development
VCT	Voluntary Counseling Test
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Acquired Immune Deficiency Syndrome (AIDS) was first reported in the United States in 1981 and it has been a crucial issue worldwide ever since. It is acknowledged as the fourth cause of death after respiratory infection, digestive infection, and tuberculosis (TBC) (Djoerban 1999, p. 5). Human Immune Deficiency Virus (HIV) and AIDS are also recognized as the most devastating health, socio-economic, and developmental issues affecting the global community since the 14th century. Since then, knowledge about HIV/AIDS has increased globally as fast as the rapid spread of the disease itself.

The HIV/AIDS epidemic has rapidly become a global crisis worldwide. It is reported that people living with HIV continued to grow to 33.4 million worldwide in 2008 (UNAIDS 2009, p.7). This was 20% higher than the number in the year 2000 with the annual HIV related mortality rate reaching 2 million deaths due to AIDS related illness. Most of the victims of these deaths lived in developing countries. HIV/AIDS continues to have a shocking impact, not only demographic but also socio-economic impact particularly for some developing countries. The disease also impacts on the increasing morbidity by reducing productivity, labor force participation and school attendance. Sub Sahara Africa has the highest number of people living with HIV, comprising 71% of all new HIV infection worldwide (UNAIDS 2009, p. 8). Furthermore Asia, with the highest population density of over 50% of the world population living, accounts for the second highest

number of people living with HIV/AIDS after Africa (table 1.1). Even a small growth in HIV/AIDS prevalence will contribute to a huge number of infections in the world.

Table 1.1: Regional statistics for HIV & AIDS, end of 2008

Region	Adults & children	Adults & children	Adult prevalence*	Deaths of
	living with HIV/AIDS	newly infected		adults & children
Sub-Saharan Africa	22.4 million	1.9 million	5.20%	1.4 million
North Africa & Middle East	310,000	35,000	0.20%	20,000
South and South-East Asia	3.8 million	280,000	0.30%	270,000
East Asia	850,000	75,000	<0.1%	59,000
Oceania	59,000	3900	0.30%	2,000
Latin America	2.0 million	170,000	0.60%	77,000
Caribbean	240,000	20,000	1.00%	12,000
Eastern Europe & Central Asia	1.5 million	110,000	0.70%	87,000
North America	1.4 million	55,000	0.40%	25,000
Western & Central Europe	850,000	30,000	0.30%	13,000
Global Total	33.4 million	2.7 million	0.80%	2.0 million

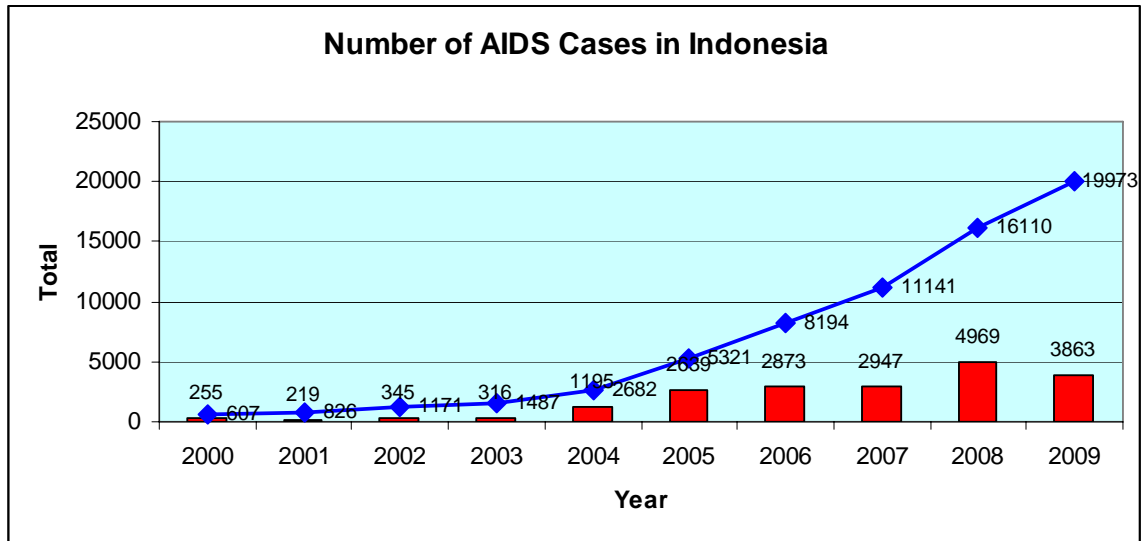
* Proportion of adults aged 15-49 who were living with HIV/AIDS

Sources: UNAIDS 2009 cited in worldwide HIV/AIDS Statistic, www.avert.org/worldstats.htm

Indonesia is a developing country with over 200 million inhabitants, of which the majority of the population consists of young people during their reproductive ages (BPS 2005). It is reported that Indonesia is one of the fastest spreading HIV/AIDS epidemics in South East Asia (UNAIDS, WHO, UNICEF 2008, UNAIDS 2007 p. 21). Generally, most developing countries have similar problems related to illiteracy, poverty, economic disparity, and cultural and gender issues which contribute to the rapid growth of HIV/AIDS, and Indonesia is no different (UNAIDS, 2009). Furthermore, AIDS continues to have a devastating impact on developing countries and this makes their conditions worse.

The first incidence of AIDS in Indonesia was discovered in 1987 in which only five cases were found (Mboi & Smith 2006, p. 96). There have been two clearly identifiable phases of HIV/AIDS epidemics in Indonesia stated by Mboi and Smith (2006 p.103) : the first phase was the period from 1987 to 2000 when the epidemic appeared to grow slowly; this was followed by the shorter period when the proportion of HIV/AIDS increased sharply starting from approximately the year 2000. Furthermore, according to UNAIDS (2006) the expansion of the HIV/AIDS epidemic was identified when the Injecting Drug Users (IDUs), who were very limited in Indonesia, significantly increased. The official number of reported HIV 1-positive cases was 819 in December 1998, of which 227 were full-blown AIDS cases (Ministry of Health, 1998). Moreover, the Ministry of Health (2009 p.1) reported that of the AIDS cases up to 31 December 2009, the total HIV/AIDS cases was nationally still below 20,000. This was based on a report from 32 of Indonesia's 33 provinces (table 1.1). On the other hand UNAIDS (2006) estimated that approximately 170,000 inhabitants were already living with the virus at the end of 2005.

Figure 1.1: number of AIDS cases in Indonesia by year up to December 31, 2009



Sources: AIDS surveillance's report of the Ministry of Health by year 1987- December 2009 (2010)

Figure 1.2. Case rate cumulative of AIDS per 100,000 population based on Provinces 2005.

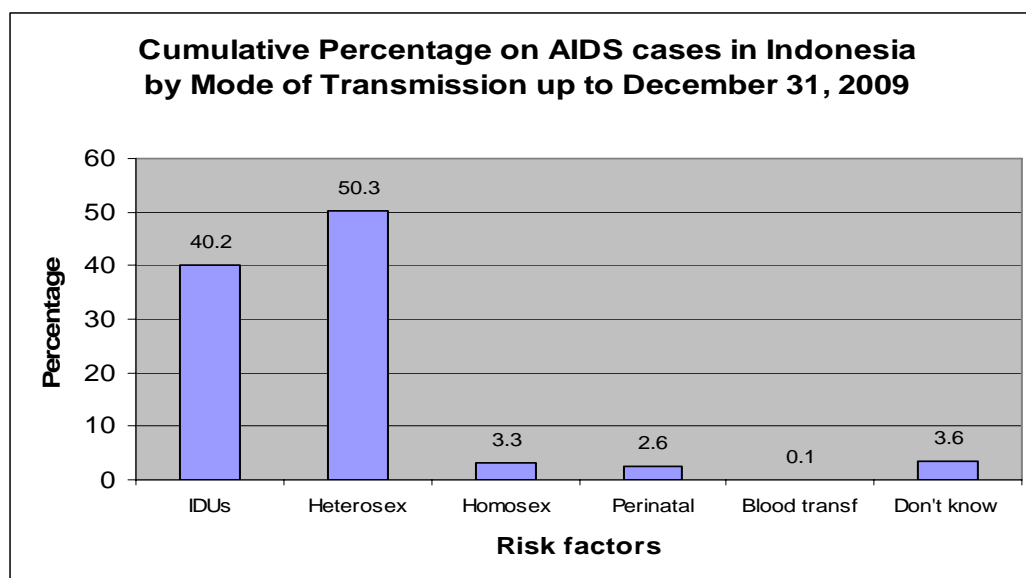


Sources: Ministry of Health Republic of Indonesia, 2007

From the figure above, it can be seen that Indonesia is characterized as a country with a concentrated HIV epidemic, in which a particularly high prevalence occurred in Papua

and no cases had yet been found in West Sulawesi in 2005 (figure 1.2). Currently, data reported by the Centre of Disease Control (CDC) of the Ministry of Health stated that the number of HIV/AIDS cumulative doubled between 2006 and 2008, and cumulatively, the transmission of AIDS cases was through heterosexual activity 50.3%, IDUs 40.2% and homosexual activity 3.3% (figure 1.3). Furthermore, the Commission of AIDS estimates that the number of men infected by unprotected sex with female sex workers (FSW) will reach its peak between 2007 and 2020 (Mustikawati et al. 2009, p. 391). Currently, sexual transmission is generally found in Indonesia as the most common mode of HIV transmission, replacing injection drug use (UNAIDS 2008 cited in UNAIDS 2009 p. 42)

Figure 1.3 : Cumulative Percentage on AIDS Cases in Indonesia by Mode of Transmission up to December 31, 2009



*mode of transmission for haemophilia is combined into blood transfusion

Sources: AIDS surveillance's report of Indonesia Directorate General of Communicable Disease Control and Environmental Health, Ministry of Health by year 1987-dec 2009, (2010).

Mboi claimed that Indonesia is now considered as ‘the new frontline of an AIDS epidemic’ with an income per capita of \$1,650 in 2007 (Snelling et al, 2006 p, 98, World Bank 2009, p. 219). As the fourth most populous nation in the world and a country, categorized as *concentrated* HIV/AIDS epidemic reaching national AIDS cases rate cumulatively at 8,66 per 100.000 population (based on central statistic bureau 2009, Indonesia population were 230.632.700), Indonesia is listed among developing countries having “high level” epidemics. Table 1.2 presents the cumulative AIDS cases, death from AIDS related illness, and AIDS case rate per province in Indonesia, in which the highest case rate is reported from Papua province (15.4) higher than national number), followed by Bali (5.2) higher than national number), and DKI Jakarta (3.7) higher than national number). The lowest prevalence was reported from Gorontalo at 0.04 which is far below the national number. Furthermore, the highest AIDS proportion reported in the 20 – 29 year age group is 49.07%, followed by the 30 – 39 year age group at 30.14, and the 40 – 49 year age group at 8.82%.

Interestingly the top three provinces with case rates have unique socio-economic characteristics. Papua is a highly traditional society with the very strong culture of wife swapping (butt, 2005, p.427). Bali is one of the major tourist destinations in Indonesia, whose first AIDS case was detected from a foreign tourist. The last province is DKI Jakarta, which, as the national capital city, has the highest population density in the country and is the most modern city in Indonesia.

Table 1.2: Cumulative AIDS cases, Death of AIDS and AIDS Case Rate per Province in Indonesia up to December 31, 2009

No	Province	ΣCases	Death	Case Rate
1	West Java	3598	634	8.60
2	East Java	3227	691	8.93
3	DKI Jakarta	2828	426	31.67
4	Papua	2808	371	133.07
5	Bali	1615	283	45.45
6	West Kalimantan	794	107	16.91
7	Central Java	717	246	2.22
8	South Sulawesi	591	62	6.65
9	North Sumatra	485	93	3.71
10	Riau	475	131	8.36
11	Riau Islands	333	130	22.23
12	DI Yogyakarta	290	81	8.51
13	West Sumatra	330	81	7.32
14	Maluku	192	70	14.21
15	South Sumatra	219	38	3.03
16	North Sulawesi	173	62	7.69
17	Jambi	165	50	5.77
18	Lampung	144	42	1.86
19	East Nusa Tenggara	138	25	3.17
20	West Nusa Tenggara	119	63	2.57
21	Bangka Belitung Islands	117	18	11.36
22	Banten	318	54	3.06
23	West papua	58	19	8.93

24	Bengkulu	91	21	5.20
25	Nanggroe Aceh Darussalam	43	11	1.05
26	South Kalimantan	27	5	0.78
27	Central Sulawesi	12	6	0.46
28	East Kalimantan	11	10	0.35
29	Southeast Sulawesi	21	5	0.91
30	Central Kalimantan	21	2	0.88
31	North Maluku	10	8	1.04
32	Gorontalo	3	1	0.33
NATIONAL		19973	3846	8.66

*case rate = $\frac{\text{Total cumulative of AIDS}}{\text{Total Population}} \times 100\%$ (Central Statistic Bureau 2009)

Sources: AIDS surveillance's report of Indonesia Directorate General of Communicable Disease Control and Environmental Health, Ministry of Health (CDC, 2010)

Snelling argues that increasing the education level is the fundamental strategy to minimize the risk of HIV/AIDS epidemic (et al 2006, p.422). Another recent study suggests that the general awareness of HIV/AIDS is less important to change the behaviour related to HIV/AIDS rather than accurate knowledge of how the disease is spread. It is not quite necessary to campaign about the transmission mode, but it is more important to increase the knowledge and awareness to influence on the access and use of such information, particularly in the countries with low level of literacy, such as Indonesia.

1.2 The Significance of the Study

So far, Indonesia has made progress in reducing the number of AIDS nationally. Cases dropped from 4,969 in 2008, to 3,863 cases at the end of 2009 (CDC 2010 p. 1), even though the national prevalence still increased sharply. Policies and strategies have been applied to reduce the proportion, but the number of HIV/AIDS cases in Indonesia is still quite high. Furthermore, the concentration of HIV/AIDS in the three highest prevalence provinces in Indonesia (Papua, Bali and DKI Jakarta) is interesting to be analyzed because those provinces have significant background characteristics. The study will analyze more details about the influence of socio – economic and demographic variables on Knowledge, Attitude and behavior (KAB) related to HIV/AIDS.

However, although little is still known about significant factors affecting the level of KAB in decreasing the number of AIDS cases in Indonesia, several studies have been conducted. One of the study was conducted by Ford, Wirawan, Fajans, and Thorpe (1995) to see knowledge of AIDS, risk behavior and factors related to condom use among male commercial sex workers and male tourist clients in Bali, Indonesia by examining level of knowledge about AIDS among commercial sex workers (CSW), their experience about STD and STD symptoms, and their level of risky sexual behavior.

This study will focus on the influence of socio-economic and demographic factors on KAB related to HIV/AIDS, particularly in three provinces with the highest prevalence rates of HIV/AIDS, both in rural and urban areas in Indonesia based on the data found in the Health Ministry's report and IDHS (Indonesia Demographic and Health Survey) report 2007. This will be specifically confined to the three provinces with the highest proportion of HIV/AIDS because presumably higher percentage of people living with

HIV/AIDS indicates low level of KAB. Therefore, this study will analyze several factors, both socio-economic and demographic factors, assumed to have strong influence on KAB related to HIV/AIDS in these three provinces. The study will potentially provide an evidence-based approach for suitable policy design.

1.3 The Research Question

Since early 2009, there has been a small decrease in the number of HIV/AIDS cases nationally. This is particularly true of the 20-29 year age group whose rate decreased from 50.82% in 2008, to 49.07% in 2009. However, the number of people living with HIV/AIDS in the three provinces during this period increased sharply. The different patterns of current level of knowledge, attitude and behavior (general and specific level of KAB) of the married women or those who have been married and currently married man of AIDS related issues discussed in the IDHS 2007 will contribute to AIDS prevalence in those provinces. The patterns refer to the proportion of those who have heard about AIDS, sources of information about AIDS, methods of preventing AIDS, misconceptions about AIDS, condom use and KAB of other AIDS-related issues. The variety of geographical circumstances, the health system capacity, the nature and size of the epidemic and available resources in three provinces should be considered as the other factors influencing on KAB of the disease. Based on these findings, this study therefore proposes a research question of how these socio-economic and demographic factors influence on the Knowledge, Attitude and Behavior related to HIV/AIDS in the three highest prevalence provinces in Indonesia.

1.4 Objective of the Study

In exploring the impact of the socio-economic and demographic on KAB related to HIV/AIDS of the respondents, the general objective of this study is to examine a range of potential factors, which shape the significant determinants of acquiring HIV/AIDS covering both rural and urban areas from the three provinces. More specifically, the study has three objectives. Firstly, it aims to analyze any critical link between the influence of socio-economic and demographic factors; education level (both respondent and husband), respondent's and husband's working status, wealth index, age of respondents, age at first intercourse, media exposure, access to condoms, access to information of HIV/AIDS, and religion and Knowledge, Attitude and Behavior related to HIV/AIDS. Secondly, the study will analyze the external factors (culture, tourism, and migration) and KAB related to HIV/AIDS. Finally, the third objective of the study is to provide recommendations for population policy and further research, which could help in reducing the incidence of HIV/AIDS by increasing knowledge and awareness of HIV/AIDS.

1.5 Methodology

1.5.1 Data Source and Limitation

The study will utilize primarily an analysis of secondary data, which have been derived from the 2007 IDHS conducted by the Central Board of Statistics in cooperation with the National Family Planning Coordinating Board and Ministry of Health and with technical assistance from Macro International, Inc. This is one of sixth demographic and health survey conducted in since 1987. The IDHS is categorized as national survey in Indonesia, part of the worldwide Demographic and Health Survey (DHS) program. The IDHS has four questionnaires, namely: a

household questionnaire, a women's questionnaire, a men's questionnaire and young adult questionnaire (IDHS, 2007). The survey provides information on population, family planning and health.

There is a limitation with these data sources. The data do not cover all people aged between 15 and 49: It only involves those women respondents who have been married (i.e. ever married) and men respondents who are currently married. Some important possible predictor variables related to married and sexual activity do not completed in get less response from the respondents because the questions are considered as personal questions. This means that HIV/AIDS in this study deals with marriage only, and does not include people aged under 15 and aged over 49 years old. Furthermore, the study will concentrate on several variables affecting the socio-economic and demographic factors that impact upon the Knowledge, Attitude and Behavior, not the status of people living or not living with HIV/AIDS because there is no data found in the 2007 IDHS. The women's and men questionnaires were used to collect information from married or women who had been married and currently married men aged between 15 and 49 years old. They were asked to respond a set of questions related to their background characteristics like age, education level, and media access, and sexual activity (including age at first sexual intercourse); family planning, particularly knowledge of condom, condom use and its sources; women's and men's occupation and background characteristics of both men and women. In addition, other supporting sources of data are utilized, for example, the four previous IDHSs (1991; 1994; 1997 and

2002/03), the 2009 report from the ministry of Health, and other relevant documents.

1.5.2 Unit of Analysis

The unit analysis of this study is women who are married or have been married (married, divorced, separated or widowed) and currently married men who aged between 15 and 49 years from three provinces, Papua, Bali and DKI Jakarta which were included in the 2007 IDHS. Papua consists of 251 and 70 ever-married women and currently married men respectively, while Bali has 587 and 174, and lastly DKI Jakarta has 1,471 and 408 respectively. The study will analyze more details the level of KAB of those three provinces regarding with HIV/AIDS both urban and rural areas according to the available information.

1.5.3 Method of Analysis

Based on data from IDHS, the research will analyze demographic, socioeconomic and external factors which are predicted to have relationship with KAB as the independent variables, and KAB as the dependent variable. In analyzing dependent and independent variables, this research will utilize three types of statistical analyses; univariate, bivariate and multivariate analyses. In univariate analysis, it will describe and identify the socio-economic and demographic factors selected which are predicted to influence on KAB related to HIV/AIDS in those three selected provinces in Indonesia. Chi-square test will be used as bivariate analysis to determine the relationship between two variables. Furthermore, bivariate statistic analysis will be used to determine the significant relationship between socio-economic and demographic factors and each of the dependent

variables, Knowledge, Attitude, and Behavior, such as education level and knowledge of HIV/AIDS. Secondly, multinomial logistic regression as the multivariate analysis will be used to determine a depth relationship between all demographic and socio-economic variables that had been selected, and the dependent variables. An index will be created for every respondent to indicate the level of KAB.

1.5.4 Variables Selected in The Analysis

As a result of the objectives of this study and the availability of data, the selected independent variables are chosen based on their expected relationship with KAB as the dependent variables. Independent variables are classified into three, namely; demographic factors, socioeconomic factors and external factors. Demographic factors involve age of respondents and age at first sexual intercourse; socioeconomic factors include level of education, working status, place of residence, media exposure, access to condoms, access to information of HIV/AIDS and other wealth variables. The last variable deals with external factors entail culture, tourism, and migration. The categorization of all variables used in this study can be seen in Appendix 1.

1.6 Hypotheses

The hypothesis of the study will examine the differences of socio-economic and demographic factors, which influence KAB about HIV/AIDS.

There are some hypotheses of the study regarding with the differences of socio – economic and demographic factors, which influence KAB of HIV/AIDS.

1. The first hypothesis is the level of education is the most significant factor which influence on the level of KAB related to HIV/AIDS than other socio-economic factors. The level of education will positively affect the level KAB related to HIV/AIDS. People with higher levels of education should be better able to access and understand information related to HIV/AIDS and its modes of transmission, should enhance people perception and of risk and strengthen their motivation to practice safe sex. This means that higher education is one of the preconditions for influencing KAB change related to HIV/AIDS. On the other hand, people with lower levels of education may know about the existence of HIV/AIDS but may be poor to respond to the risk of HIV/AIDS appropriately because of the lack of, or partial knowledge they have about mode of transmission (Snelling et al. 2006, p.422).
2. The second hypothesis presents those who have higher income will have a better knowledge, positive attitude of HIV/AIDS and positive sexual behavior. This indicates that the wealth quintile has a positive relationship with KAB related to HIV/AIDS.
3. The last hypothesis argues that three important aspects of behavior; use of condoms, access the right information of HIV/AIDS, and obtaining condoms by themselves when they had sexual activity can increase positive sexual behavior limiting related to the transmission of HIV.
4. The fourth and the final hypothesis claims that age at first sexual intercourse will has significant correlation with the level of KAB. People who have started their sexual activity earlier than average will have longer exposure of sexual activity. It is more likely to be connected with higher risks of infections with sexually transmitted

diseases including HIV/AIDS due to the accumulating of sexual partners (Snelling et al. 2006, p. 423).

1.7 Definition of Main Terms Used in the Study

AIDS : The acronym stands for ‘Acquired Immune Deficiency Syndrome’, a condition resulting from infection with human immunodeficiency virus which suppresses the body’s immune response (VandenBosh 2002, p. 32).

HIV : The letters stand for ‘Human Immunodeficiency Virus’. According to Centre for Diseases Control and Prevention (CDC, 2010), HIV is the virus that causes AIDS by destroying the body’s white blood cells (immunity cells) called CD4+ T cells, which are crucial to help the body fight diseases.

Knowledge : Knowledge is an awareness of the existence of something (VandenBosh 2002, p. 516). Knowledge in this study is defined as the accumulation of information about HIV/AIDS.

Attitude : Attitude is defined as a relatively enduring and general evaluation of an object, person, group, issue, or concept on a scale ranging from negative to positive (VandenBosh 2002, p. 83). The term ‘attitude’ in this study is defined as the feeling, perception or assessment of the respondent to some statements, and conditions related to HIV/AIDS.

Behavior : This is a generic term covering acts, responses, activities, reactions, movements, processes, and operations; in short, any measurable response of an organism (Reber & Reber, 2001, p. 82). Behavior in this study is emphasized as the sexual behavior of the respondent related to HIV/AIDS, such as using condoms as a contraceptive.

1.8 Outline of the Study

This research project is organized into four chapters. The first chapter provides an introduction which covers: a brief description of the background information; the significance of the study; the research question; the research problem; the objectives of the study; methodology; hypotheses; definition of main terms used in the study; and the organization of the study. A review of several previous studies and relevant literature, past and present, will be discussed in the second chapter as well as the conceptual framework regarding HIV/AIDS. The next chapter presents the analysis and discussion of chosen variables according to three different methods: descriptive, bivariate and multivariate analyses. The study concludes with its fourth chapter, which makes several final remarks and recommendations for both further policies and research on HIV/AIDS.

CHAPTER TWO

LITERATURE REVIEW

This chapter presents a summary of the selected literature in the area of Knowledge, Attitude, and Behavior (KAB). It starts with the review of the literature dealing with the global knowledge of the HIV/AIDS situation paying particular attention to how the countries' efforts globally combat the epidemic through providing information, providing education, and conducting education campaigns to reduce and prevent the diseases related to HIV/AIDS. The chapter will also examine the literature regarding theories about knowledge, attitudes, and behavior. The general description of knowledge of HIV/AIDS will be presented, and then it will be linked to how those three components influence individual outcomes. This chapter provides a review of the selected conceptual issues of how socio-economic and demographic factors influence knowledge, attitude and behavior related to HIV/AIDS. It is assumed that individual's background characteristics such as age, marital status, education, economic status, and place of residence play an important part in the spreading of the epidemic and these factors determine the level of KAB. A conceptual framework of the interrelationship between these variables is examined with the purpose of illustrating that they are independent.

2.1 HIV/AIDS and Concept of Knowledge, Attitude and Behavior

Since the HIV/AIDS epidemic started in the end of 1980s, there have been many kinds of information, education and communication campaigns created by both government and private sectors to prevent and reduce the spread of the disease. Yet, the crucial knowledge

gap persists, and misconception related to the transmission of diseases is widespread. Since the early 1990s, governments worldwide have conducted an analysis of the data from Demographic and Health Survey (DHS) in 32 less developed countries. These analyses included both men and women. These surveys included special sections on sexual knowledge and behavior that include questions related to HIV/AIDS. A great benefit of the DHS is that the questionnaires are standardized both across countries and over time, though some differences exist (Glick & Sahn, 2007 p. 5). Compiling all the information related to HIV/AIDS that were collected in DHS surveys for different countries, it was found that almost 50 per cent of all illiterate women lacked significant knowledge to protect themselves against HIV/AIDS (World Bank 1999 cited in Aggarwal and Rous, 2006 p.271).

Acquiring knowledge of HIV/AIDS is a crucial step in the prevention of the transmission of HIV/AIDS. The prevention and continual spread of its infection depends upon changes in sexual behavior as well. The community believes that the individuals' attitude plays an important role in the prevention of disease, particularly their perception of vulnerability to the disease, significance of the disease and the advantages of health action.

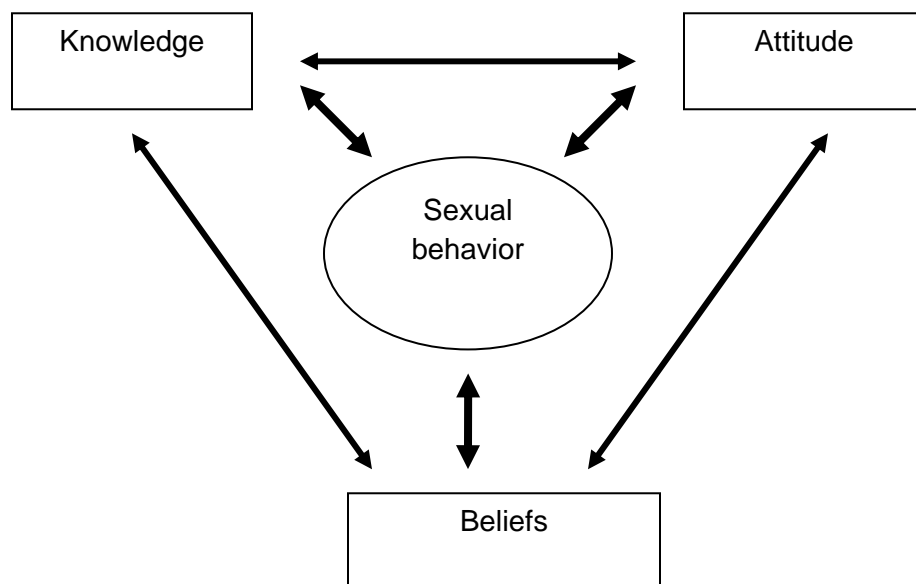
Furthermore, Hunt (2003 p.100) argues that knowledge is a concept which cannot be seen, but can only be observed. HIV/AIDS experts describe HIV/AIDS knowledge as accurate information related to the disease which adolescents must learn before they become sexually active. Knowledge must be regularly reinforced and built on through schools, communities and the media (UNAIDS/UNICEF/WHO 2002, pp. 26-28).

Knowledge can also potentially impact on the person's behavior. Nettar (1992 cited in Aggarwal & Rous 2006 p. 272) states that knowledge is one of the essential components of any successful public health strategy; even if it is not quite significant enough to change the behavior. Moreover, Taliaferro, (1991, p.12-13) states that 'attitude is belief, values and experiences about certain object or situation that causes someone to behave a certain way'. A person's behavior is not an independent action, but a number of factors, such as activities, knowledge, response, and reactions to other environment factors which will influence it.

Both attitude and knowledge are necessary to identify specific consequences following the behavior. They are variables that are crucial to increase the quality of life, and attitudes are the first step to changing behavior. A positive correlation occurs between attitude and behavior, if the individual's attitude is positive, and vice versa. Thus, it can be suggested that knowledge changes attitude, attitude does change behavior. Without sufficient knowledge, attitude cannot create a change. Colvin and Sharp (2000) state that the level of knowledge related Sexually Transmitted Infections (STIs) like HIV/AIDS, such as the low level of HIV/AIDS prevalence in rural Lesotho, indicate a low level of knowledge. Therefore, a circle effect has occurred in which knowledge changes attitudes, attitudes change behavior, and behavior is the product of knowledge (Taliaferro 1991, p. 83). Otto (2007, pp. 37-38) illustrated the relationship between knowledge, attitude and behavior into a diagrammatic link below (Figure 2.1.1). 'Beliefs' has been added in his research diagram to explain that people's knowledge about transmission and prevention

of HIV/AIDS is not only dependent on the factual scientific knowledge, but also on their beliefs.

Figure 2.1 : A diagrammatic representative of knowledge, attitude and behavior factors.



Adapted from : *Lesotho* (Otto 2007, p. 37).

In the light of AIDS, basic knowledge of HIV/AIDS does not always result in less risky behavior. It would benefit both society in general and the high-risk population particularly to have a more positive attitude towards behavior to prevent the continual spread of AIDS. Improving knowledge about AIDS and changing attitudes can promote the health and well-being of each individual of the HIV/AIDS epidemic by focusing on providing information to individuals in high-risk groups, namely: Intravenous Drug Users (IDUs),

sex workers and their clients, and men who have sex with men, even though they have not achieved total prevention yet. The information considers first, knowledge about behaviors reducing HIV risk. Thus, the information covers knowledge about the risk of infection as well, which can be decreased by the following: using condoms, limiting the number of sexual partners or having only one partner, and abstinence (avoiding sexual relations). Campaigns, education, training, promoting and advocating can be important ways to reduce the epidemic and spread knowledge; attitudes can be influenced and, therefore, positive behavior can be changed.

2.2 Socio-economic Variables and Knowledge, Attitude and Behavior (KAB) related to HIV/AIDS

2.2.1 Education Level

Level of education and information may influence decision and behavior of a person (Hochhauser, 1988, p. 4). Inspired from this quotation, the author wants to emphasize that theoretically, level of education may determine not only access to the development of HIV/AIDS information, but also the effect of the information on actual knowledge and attitude toward prevention of diseases. At least in younger cohorts, those who went to or stayed in school may have been exposed to school-based HIV/AIDS and other STIs programs and how to prevent them. However, this theory is not always true. AusAID (2006, p. 92) claims that education will not significantly affect HIV prevalence. People with a higher level of education may still be infected with the virus due to their sexual behavior. It is relevant with what Hochhauser (1988, p.4) emphasized that AIDS is a behavioral

disease, not an educational disease. Snelling et al. (2006 p. 423), however, argue that education could modify the impact of knowledge of HIV/AIDS transmission in order to protect behavior. There are two opposing impacts, namely positive interaction (prerequisite effect) and negative interaction (redundant effect). Positive interaction occurs when higher education community served a precondition to give additional information on knowledge about transmission of HIV/AIDS by applying appropriate programs among those with less education. For instance, before doing HIV/AIDS campaign in rural areas, those less educated people are given such pre information related HIV/AIDS through mass media, like radio, television, newspaper and magazine. On the other hand, redundant effects mean the implementation of HIV/AIDS transmission programs may be more effective and efficient if they are applied to those less educated people, rather than higher educated.

Glick and Sahn (2007, p.2) say that:

‘Educated people are more likely to have access to many sources of health and HIV-related information: they are more likely to read the newspaper or to visit private or public health services where HIV-related information is dispensed’.

This means that those who are better schooled are expected to have better knowledge and awareness of HIV and how it can be prevented. Education may also make it easier for individuals to process and understand the information about HIV/AIDS to which they have access. When the information comes from sources

such as television and newspapers, the cost of acquiring information will be low as well. Furthermore, Becker (1993 in Glick & Sahl 2007 p. 2) argues that people who have a higher level of education have already made longevity investments for the future since education may have greater incentive to seek information and change their behaviors to insure for longevity.

A study shows that in Papua, illiteracy are very high among indigenous Papuans, most of whom are living in rural communities in the mountain, jungles, or along the long coastline (Butt et al. 2002, p. 2). Those barriers may be the reasons for high illiteracy in Papua, therefore increasing the HIV/AIDS prevalence due to lack of information, access, and facilities. The awareness of HIV/AIDS and condom use in Papua remained low (Butt et al., 2002, p.8) There are many HIV/AIDS, therefore, concern to improve the low level of knowledge through campaign of HIV/AIDS.

2.2.2 Working Status

There is an inconsistency between knowledge and behavior found in some parts of Indonesia. Several studies reported that different occupations including sailors, high school students, Intravenous Drug Users (IDUs) and truck drivers, and both educated and uneducated people represented inconsistencies in using condoms. Even though sailors and truck drivers know that condoms protect against sexually transmitted diseases, they still do not practice safe sex (Mboi & Smith 2006 pp. 99-100). The World Health Organization (WHO 2009, p. 21) reported that 'high

risk men' of HIV/AIDS in Indonesia were identified among truckers, taxi drivers, dockworkers and seafarers. A high proportion of them were likely to have sex with female sex workers. Most of the high-risk men were married men and included educated and uneducated men.

Barton and Wamai (1994 cited in Ayiga 1999 p. 30) found that sex workers in Uganda had a very high knowledge about HIV/AIDS, especially about sexually transmitted diseases. MaCombie (1990 cited in Ayiga 1999 p. 30) states that in some populations which represent a high level of knowledge about HIV/AIDS, the misconceptions of routes of transmission of diseases are high as well. Gonzales (1996 cited in Ayida 1999 p. 30) claims, 'Knowledge of preventive methods appears to be still theoretical'.

2.2.3 Wealth Index

There has been much public debate in recent years about whether poverty should be considered as the factor related to HIV/AIDS. Women are believed to be in a relatively disadvantaged position compared to men regarding the gender differential literacy and earning. Booyesen and Summerson have claimed that:

'Poverty stands to increase the vulnerability of women to HIV infection by resulting, among other things, in unsafe sexual practices, often due to a lack of knowledge, lack of access to means of protection,

and inability to negotiate condom use with sexual partners as a result of entrenched gender roles and power relations' (2002, p. 285).

Poverty raises the possibility of infection with HIV/AIDS, particularly in the circumstance of high literacy, since poor people with low incomes may have less opportunity and access to condoms. It is arguable that the economic status is one of the factors influencing the authority for women, particularly, to gain a better education. It is one of the indicators in knowledge attainment, particularly related to HIV/AIDS. Generally, economic status can be identified from the ownership of important assets and from indicators of a household's living standard, such as electricity connection and flushing toilets on household property.

Recent data found that in rural areas, where the quantity of land owned is used to measure wealth status, land ownership has a statistically significant negative effect on both awareness and quality of knowledge (Aggarwal & Rous 2006, p. 290). This can be explained by the fact that women from more land-poor families work outside the house and thus have greater opportunity for informal interaction and learning. Furthermore, Booysen and Summerton (2002, p. 285) argue that women living in poorer conditions have less knowledge about HIV/AIDS than those in better socio-economic conditions. On the other hand, a survey conducted in urban areas stated that the assets, such as refrigerators, cars, televisions and motorcycles were found to have a positive effect on both awareness and quality of knowledge.

2.2.4 Media exposure and Access to Information of HIV/AIDS

Exposure to mass media is another factor that influences the HIV/AIDS knowledge of an individual. Exposure to the HIV/AIDS information through the media such as radio, television and newspapers are valid instruments influencing knowledge directly (Frolich and Alvarez 2008, p. 22). Similarly, the direct exposure to information about condoms (or family planning programs) in such mass media provides similar effects on knowledge directly. Clearly, the mass media is one of the information channels conveying knowledge about HIV/AIDS through information campaigns. Expectantly, those media have significant effects on awareness and quality of knowledge. Data presented by Aggarwal and Rous (2006, p. 278) show that highly educated people living in rural areas without access to media or other sources may know little about this disease as opposed to the similarly educated person in urban areas.

Some studies measuring knowledge as an outcome reported a positive effect on the impact of mass media towards population sub groups, with the effect ranging from 2 – 100 per cent improvement in the proportion of respondents with better knowledge (Bertrand et al. 2006 p. 18). As the Uganda experiences show, the percentage of single women having casual sex significantly decreased from 11 – 3 per cent before and after a campaign of sexually transmitted diseases (Schopper et al. cited in Bertrand et al. 2006 p. 26).

Aggarwal and Rous (2006 p. 388) reported that listening to the radio regularly also has a significantly effect on the awareness of HIV/AIDS both urban and rural women.

2.2.5 Access to Condoms

Some researchers identify characteristics which might help explain the difficulties in making any prevention efforts to AIDS prevention and education. Access of condom is one of factors associated with high spreading of HIV/AIDS in Indonesia in general. Based on the recently data found, it indicated that sexual transmission is in the first rank found in Indonesia as the most common mode of HIV transmission, replacing injection drug use (UNAIDS 2008 cited in UNAIDS 2009 p. 42). Patterns of condom use repeat the stratifications found within the sex work industry. As a result, government focused on the Female Sex Workers (FSW) related to condom use to prevent high speed of HIV/AIDS. Counseling and prevention is stressed as well in order to change sexual behavior. This focuses on routes of transmission and methods of prevention. Decreasing the number of sex partners, avoiding sexual contact with individuals who have several partners, and having safer sex can all be used to decrease the amount of sexually transmitted diseases, particularly HIV/AIDS.

Misconception due to lack of information could be one of the factors influencing the high prevalence of HIV/AIDS in Papua, Indonesia. Awyuman (in Butt 2005 p. 430) stated that:

‘We Papuans want to use a condom, but we don’t know how to use it, what is it used for? Now if we knew, oh, a condom is used like this, this is the way to use it, then yes, we would like to use it’.

Even the government, particularly the Family Planning Institution, and non-profit companies promoted safe sex with condoms to prevent HIV/AIDS and increase knowledge of it through the acronym of ABC: “A” for “abstinence” (*abstinen*), “B” for “Be faithful/monogamy” (*baku setia*), and “C” for “condom” (*kondom*), but only A and B can be perceived (Butt 2005, p. 429). This might be due to the widespread “cultural of shame”, which makes it hard to convey the message and conduct an open discussion about sexuality and condoms. Similar circumstances occur in Sub Saharan Africa where the HIV/AIDS is significantly high. Caldwell (1999, p. 244) depicts that cultural of shame as ‘under-reaction to AIDS’ to describe the silent condition toward AIDS, and refusal to open public discussion at any level of society. The culture of silence here is proven when there is a funeral, in which no one says the death is caused by AIDS, and government do not want to expose it. Furthermore, mothers never know that her daughters are sexually active, and female sex workers are readily available anywhere, except in remote areas. There is a strong feeling against condom use among males due to personal experience with them, but more often the problem is their bad reputation, false

rumors and myths. The most common reason for non use is that the condom prevents a feeling of intimacy (Caldwell 1999, p. 247). Intervention programs to increase awareness and knowledge related to condoms might do better to emphasize their protection against HIV/AIDS.

2.2.6 Religion

Religion is another factor that affects the individual's knowledge, behavior and attitude related to HIV/AIDS. Data taken from Ghanaian indicate that religion has significant influences on knowledge of AIDS (Takyi 2003, p. 1221). As different studies suggest, HIV/AIDS can only be effectively combated where it is not considered as secret but is openly discussed. Therefore, free and open public discussion is an essential prerequisite for any effective anti-AIDS program. On the other hand, several Christian and Muslim religious leaders consider that AIDS is widely believed as the punishment for the sexual sin (Orubuloye, Caldwell & Caldwell 1993 cited in Caldwell 1999, p. 245). Furthermore, a study found that in some Moslem countries, religious belief that receiving promotion of condoms will encourage sexual promiscuity (Hasnain, 2005, p. 5). On the other hand, Lagarde et al. (2000, p.2032) identified in a study that religion had weak correlation with preventive behavior. It was only slightly correlation, but it was non-significant relationship.

2.2.7 Place of Residence (Urban/Rural)

The variation in source of information and lack of accuracy, and lack of access to information sources influencing the different risk and knowledge of HIV/AIDS are different between rural and urban areas. Urban dwellers represent a lower level of risky sexual behavior (Snelling et al. 2006, p. 424). This may be arguable due to the characteristic of urban dwellers. Urban dwellers have been attributed as being the focus of HIV campaigns; having an increased awareness of HIV/AIDS through mass media; having more access to condoms to prevent HIV/AIDS and other STIs, and having easier access to reproductive health services including treatment for sexually transmitted diseases (Akwaru et al. 2003; Zambuko & Mturi, 2005 cited in Snelling et al. 2006). Therefore, people living in urban areas would be associated with more, and more accurate, knowledge about HIV/AIDS information.

There is a significant differences in HIV/AIDS sources of information between rural and urban areas. The first and most significant source of information for rural areas was the community meeting. The information from the community meeting here is ‘second hand’ information, upon which one cannot rely. Thus, the information in the rural areas is inferior if it is compared with that in urban areas. Most of the information in rural areas may be gained from the family members’ discussion. The information related to sexual matter is still “taboo” and is not discussed. Furthermore, misconceptions regarding HIV/AIDS modes of transmission and preventive

methods occur more in rural areas as compared with urban. These are socio-cultural factors which prevent individuals from gaining knowledge about HIV/AIDS. Thus, this indicates that there is a big gap between rural and urban areas regarding HIV/AIDS information.

2.3 Demographic Variables and Knowledge, Attitude and Behavior related to HIV/AIDS

Several variables including age, education and sexual history need to be considered to examine the influence of demographic factors on the relationship with KAB related to HIV/AIDS.

2.3.1 Age and Age at First Sexual Intercourse

It cannot be denied that a person's age is likely to be associated with protective behavior relating to sexual relations, in which sexual intercourse is known as one of the main routes of HIV transmission. A characteristic of young people (risk taking, sense of invulnerability and lack of cognitive maturity to understand consequences of action) exposes them to HIV infections and creates a great danger of spreading the virus further. The probability of young people being infected with HIV is higher than that of older people because young people usually have lower knowledge than that older people does.

According to UNAIDS/WHO (2001, p. 2), it is estimated that one third of those living with HIV/AIDS in the world are adolescents aged between 15 and 24 years. The most common reasons why young people more infected than

that older people are youth either do not know whether they have the virus, or have little knowledge about how to protect themselves against it. Similarly, Snelling et al. (2006 p. 423) stated that adolescents have a higher risk of HIV/AIDS infection due to their engaging in unprotected sexual intercourse, and their misconception that at their age, adolescents have a lower risk of any infection.

Moreover, Nyamongo (2009, p.15) states that adults take an essential part in the spread of HIV infection among youth. The notion about the virus and its risk can be introduced by parents to them. On the other hand, the danger of adults' behavior can influence young age groups as well. For example, adult men living with HIV/AIDS come to young girls in uniform (some young school are doing prostitutes) and attract them by giving them money and gifts for sex. They did not tell them that they are infected. On the other hand, the girls tend to have unprotected sex, due to economic reasons, with the unmarried and married men who are much older than they are, in which researchers from the University of California in San Francisco called those men as "sugar daddies" (cited in Otto, 2007 p.7). The girls are interested in money and have no power to refuse when they perceive an unsafe prospective sexual encounter with those "sugar daddies"¹. Thus, Sugar daddies are likely to have been exposed to HIV both because they are older and are likely to have had more sexual relationships

¹A wealthy, usually older man who gives expensive gifts to a young person in return for sexual favors or companionship (Dictionary of Idioms by Christine Ammer, 1997)

The most important thing from the effect of age at first sexual intercourse, especially when it is before marriage, is related to the longer exposure to sexual activity. This long period of exposure to sexual activity is more likely to be connected with higher risks of infections with sexually transmitted diseases including HIV/AIDS due to the accumulating of sexual partners (Snelling et al. 2006, p. 423). Even though information of HIV/AIDS might be affecting knowledge of the individuals, but not all individuals in the population will have been exposed to the information 'before' starting their sexual life. Youth is identified as being remarkably vulnerable because they often perceive the risk of acquiring HIV particularly girls who have started their sexual activity earlier than average. Most of those girls are still unable to protect themselves against sexually transmitted diseases (Serlo 2008 pp. 29-30).

The effect of age on the level of knowledge about HIV/AIDS exhibited different results for men and women in different countries. In Zimbabwe, the differences of age significantly influenced the acquiring of knowledge. The level of knowledge was determined by the increase in age which was different between men and women. The level of women's knowledge increased as age increased, while it did not for men. The level of men's knowledge increased first, then it declined as age increased (DHS Zimbabwe, 1994).

Recent studies for women in the intermediate age group (20-39 years old), in both rural and urban areas are more likely to be aware of AIDS compared to women in the youngest (15-19), and older (40-49) age groups (Aggarwal & Rous 2006, p. 389). This is reasonable and not surprising because the intermediate age would be more aware of, and willing to gain knowledge than would younger women. For the young cohort, this is related to their perception of youth: that they are at a low risk of infection despite their behavior. Young people consider that they are indestructible even if they have multiple sexual partners. Different reasons occur for the oldest groups (40-49) having less knowledge. First, the older women may be less willing to join the informal discussion related to AIDS. Secondly, getting formal information of AIDS for older women cost a lot of money, and their perception that they would get low expectation of the benefit by knowing such information.

2.4 External factors and Knowledge, Attitude and Behavior related to HIV/AIDS

2.4.1 Culture

In some countries, people's cultural value systems usually influence the ways in which they assess risk or danger. Caldwell argued strongly for interventions to address cultural values if they are to have an effect on spreading of HIV/AIDS (butt et al, 2002, p.2). The "silent" culture occurs, when "taboo" is still common in a society. In Indonesia, for example, it is taboo for parents to discuss sexual matters with their children. Even when young girls demonstrate to the elders that they are knowledgeable about sexual matters, they will be

considered as impolite girl due to showing sex matter openly. As stated by UNAIDS (2004, p. 13), in many societies, it is considered taboo to openly discuss sex, sexuality and gender roles with their children. It occurred in Indonesia as well.

In Papuan, tradition culture is considered as one of the factors that influences the low level of Papuan's knowledge. Butt et al (2002,p.1) found in a research that Papuan were burdened by cultural values that prevented them from learning and adhering to safe sex principles. Some of the "cultural problems" understood to prevent Papuans from embracing knowledge about AIDS were Polygyni (have more than one husband); "wife swapping;" "promiscuity;" and an unwillingness to learn ideas (Butt et al, 2002, p. 3, Butt, 2006, p.427).

2.4.2 Tourism

Tourism could be one of the other factors which has influenced the high speed spread of HIV/AIDS in Indonesia. As previously mentioned, the first AIDS case in Indonesia was identified in a foreign tourist in Bali in 1987. National AIDS Commission state that since heterosexual transmission of HIV/AIDS is the predominant mode of transmission in Indonesia, commercial sex workers (CSW) constitute one of the communities at high risk of becoming infected and transmitting HIV/AIDS (NAC, 2009, p. 1).

Tourists and commercial sex workers have close relationships due to the fact that most of the tourists are far from their partners or wives during their vacation. In Bali, the commercial sex industry is concentrated in the provincial capital city of Denpasar, the nearby tourist centre in Kuta, Sanur and Nusa Dua. Although commercial sex is illegal throughout Indonesia, and the law is periodically enforced in Bali by arresting and deporting commercial sex workers (CSW), their numbers are still high. Studies have shown that consistent condom use among CSWs is effective in reducing the risk of AIDS infection (Ford & Wirawan, 1996; Sawanpanyalert, Ungchusak, Thanprasertsuk, & Akarasewi, 1994; Taha et al. 1996; Zenilman et al. 1995 cited in NAC, p. 1)). There are many factors that contribute to the inconsistency of condom use among CSW and their clients in Bali. It could be that their awareness about HIV/AIDS is still low, and that they still have misconceptions about safe sex behavior related to the use of condoms.

2.4.3 Migration

Mboi and Smith (2006, p. 100) report that poverty in Indonesia forces men and women to do long term migration, including national and international migration, a pattern that is related to high-risk sexual behavior. During the different phase of migration, both men and women have different experiences related to transmitted diseases. It is reported in Cambodia that ‘migration often leads men and women to break from traditional norms, where men have multiple partners and use drugs and women engage in paid sex’ (Roberts

2009; Tu Anh et al. 2009 cited in UNAIDS 2009, p. 13). The reasons are the migrants separated from their spouses for long periods, thus they have “multi partnered” sexual relations. Letamo and Bainame (1997, p. 97) claim that separations of spouses for long periods has been advanced as a major contributor factor for having “multi partnered” sexual relation. When migrants get separated from their socio – cultural root as well, they are no more under strict behavioral codes of the society they originally come from. The other reasons are they have no recreational activities, which may lead them isolation and increasing stress.

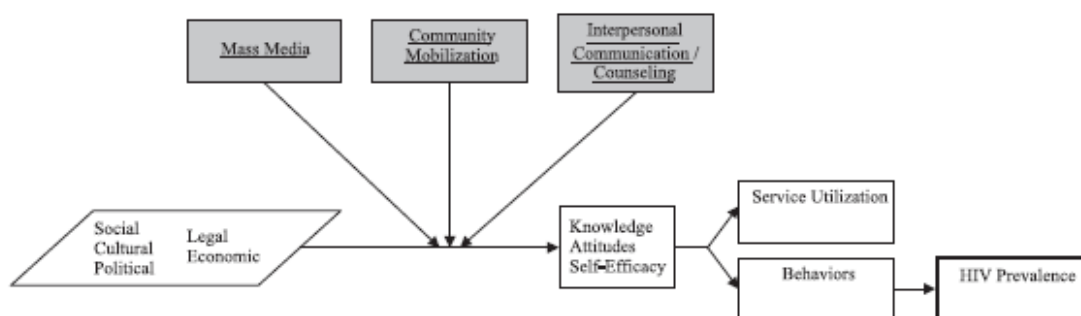
As a result, migrants tend to have multiple sex partners and unprotected sexual relationships; commercial sex, and the high risk of HIV/AIDS are unavoidable (UNAIDS, 2008, cited in UNAIDS 2009). Furthermore, Hugo (2001, p.141) stated that sex industries play a key role in Indonesia. Several sub groups in the population who are at higher risk of becoming infected with HIV should be identified. The high-risk groups also have high level of mobility, which may be as the factors in enhancing spreading of HIV/AIDS.

2.5 Conceptual Framework

Based on the brief review of literature on knowledge, attitude and behavior related to HIV/AIDS a conceptual framework for this research has been proposed in this section (figure 2.4). The framework is basically inspired by a diagrammatic circle between knowledge, attitude, behavior and belief created by Otto (see previous figure), and a

framework offered by Bertrand et al. (2006) for analyzing HIV/ AIDS prevalence in Sub Saharan Africa (Figure 2.3). The framework depicts how communication programs are expected to change HIV-risk behavior. There are several factors, such as social, cultural, political, legal, and economic factors, which are considered obstacles to behavior change. Moreover, the mass media is expected to have an effect on psychological factors, including knowledge, attitude, and self-efficiency. The most common behaviors that are assumed to change are the reduction in the number of multiple sexual partners, increasing condom use, and abstinence.

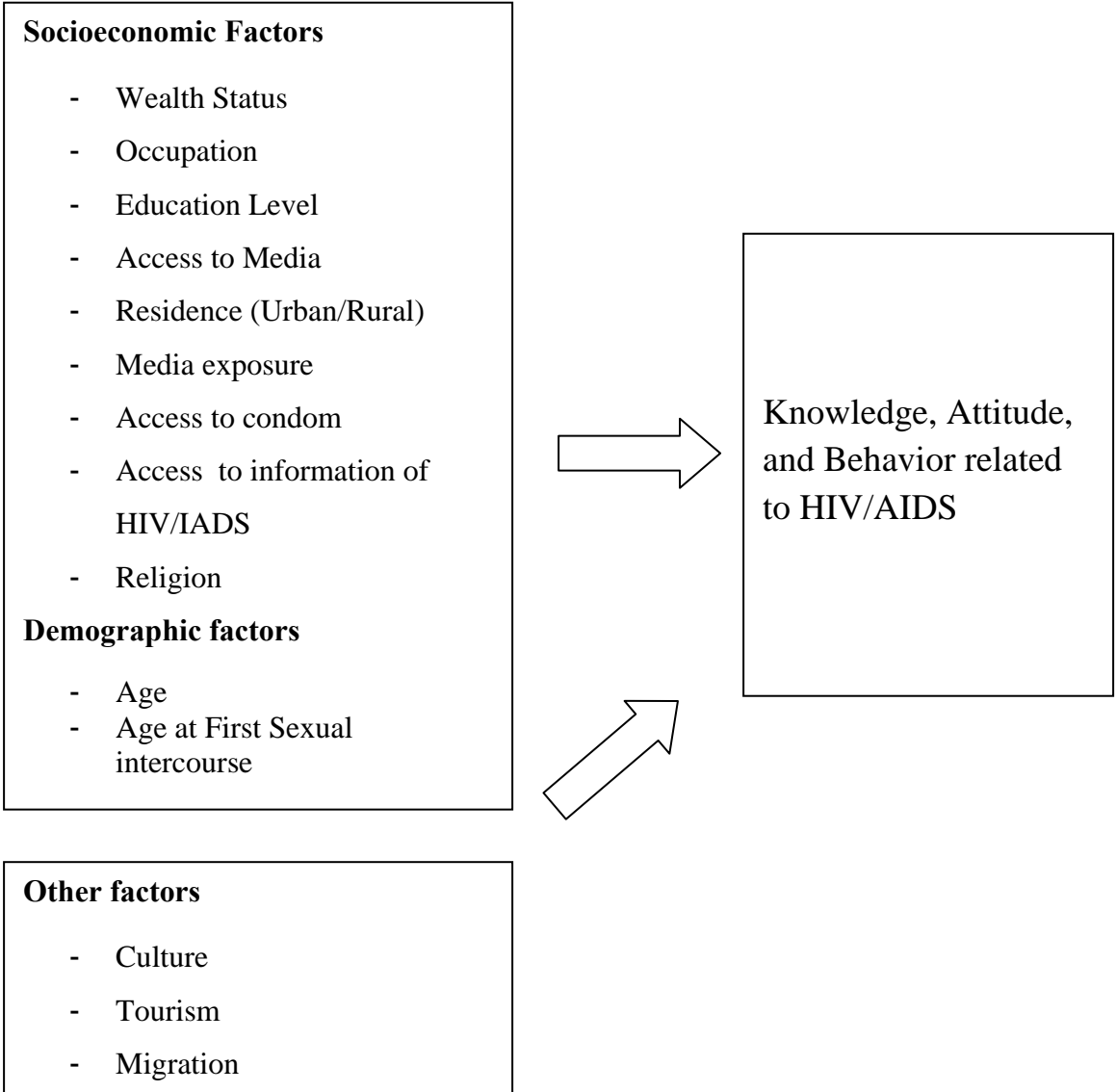
Figure 2.3 : Conceptual framework for the effects of mass media



Sources: Bertrand et al., 2006

However, this research will be restricted to on the analysis of the factors influencing KAB related to HIV/AIDS (see figure 2.4)

Figure 2.4 : Simple framework of the influence of socio-economic and demographic factors on KAB related HIV/AIDS



CHAPTER III

ANALYSIS AND DISCUSSION

This chapter utilizes data from the 2007 IDHS to investigate the influence of socio-economic and demographic factors on Knowledge, Attitude and Behavior (KAB) related to HIV/AIDS. The analysis will focus on the three provinces selected (DKI Jakarta, Bali and Papua), which have the highest level of HIV/AIDS prevalence. The analysis starts with simple descriptive statistics analysis, followed by more complex analysis based on the bivariate and multivariate techniques. These analyses will be carried out separately according to the unit analysis chosen in each province. The last section ends with the summary of major findings of this chapter.

3.1. The Analysis

3.1.1 Descriptive Analysis

This section describes the findings analysis of selected variables based on the descriptive analysis. Descriptive analysis is important to identify and summarize the characteristics of the sample or population related to the variables. Some of the variables have to be recoded and classified as appropriate variables. There are two types presented in this analysis: categorical variables for independent variables; and continuous variables for dependent variables. The main focus of this analysis is to describe the frequency distribution of each variable from those three provinces.

a. Dependent Variables – Knowledge, Attitude and Behavior

The 2007 IDHS provides extensive information on the individual's declared HIV/AIDS – Knowledge, Attitude and Behavior (KAB) with common questions asked of females in the three provinces with the highest level prevalence of HIV/AIDS in Indonesia (Papua, Bali and DKI Jakarta with the total respondents 251, 587 and 1471 respectively). The study attempted to analyze the data from the couple's dataset to find out the husband's KAB as well, but the couple's dataset was not eligible to be analyzed as there were only 64 respondents (husband's respondent) and limited responses. Most of the data showed a huge missing system which can be seen from the very few responses from male respondents in the couple's data. Private questions may have been given, although the writer considered that those private questions, such as had ever paid of sex, and had more than one wives recently interviewed were good to measure KAB related HIV/AIDS. For example, from 64 respondents in Papua who were asked about condom use with sex, only 4 respondents gave answers while 60 respondents did not. This is similar to the question about ever having paid for sex, which only got 4 responses from 64 respondents: two respondents answered 'no'; two answered 'yes'; and 60 were included in the missing system.

As opposed to males in the couple dataset, females gave quite good responses in answering the questions related to KAB. Table 3.1, 3.2, and 3.2 show a set of questions for knowledge, attitude and behavior. The total of the questions are 12,

divided into 6 questions for knowledge, 4 questions for attitude, and 2 for behaviour. Those questions provide direct information on how individuals are measured with regards to the meaning of knowledge, attitude, and behavior (KAB) on HIV/AIDS. To gain a single-factor model from each of those dependent variables, a composite index was derived from a set of indicator items. These items were based on questions that were used in the women's questionnaires from the 2007 IDHS. Frölich (2008, p. 51) states that knowledge can be measured into three different ways, namely: by the number of correct answers; the principal component; and by item response theory (IRT). In this research, the author will use the first method to get an index of the KAB. Most of the questions could be answered with 'yes', 'no' or 'don't know'. An answer is considered a correct answer if the answer is 'yes'. Then, each of those questions formulating dependent variables was coded as 'don't know' (0), 'no' (1), and 'yes' (2) responses.

In this study, the author collected several different questions to formulate an index of those three dependent variables, knowledge, attitude and behavior (KAB) used in the study. The knowledge index was calculated from six questions, in which 12 was considered as the highest score (table 3.1). Then they were re-coded into a binary response with 'poor' coded as '1' and calculated in the level of 0 – 5, while 'better' was coded with '2' and was indicated in the level of 6 – 12. A Knowledge index was gained from those six questions which asked whether respondents: 'had ever heard of HIV/AIDS'; 'knew ways of reducing risk from AIDS by not having sex at all'; 'knew ways of reducing risk from AIDS by limiting sexual intercourse to one

faithful partner’; ‘knew ways of reducing risk from AIDS by using condom during sex’; could identify a healthy person having AIDS’, and ‘knew of Voluntary Counseling and Test (VCT)’.

Table 3.1 : Percentage distribution of variables composing knowledge as dependent variable

No	Questions	DEPENDENT VARIABLES			
		KNOWLEDGE			
		Answer	DKI Jakarta (%)	Bali (%)	Papua (%)
1	Have you ever heard of an illness called AIDS	yes	91	27.1	56.4
		no	9	72.9	43.3
		don't know	0	0	3
2	Can people reduce their chances of getting the AIDS virus by having just one uninfected sex partner who has no other sex partner?	yes	73.6	42.4	8.2
		no	11.5	19.4	31
		don't know	15	38.2	60.7
3	Can people reduce their chances of getting the AIDS virus by using a condom every time they have sex?	yes	61.7	39	32.7
		no	20.5	19.3	10.5
		don't know	17.7	41.5	56.6
4	Can people reduce their chances of getting the AIDS virus by not having sexual intercourse at all?	yes	66.3	33.4	31.8
		no	18.3	26.1	11.1
		don't know	15.4	40.5	57

5	Is it possible for a healthy-looking person to have the AIDS virus?	yes	73.7	43.9	33.5
		no	7.7	14.6	4.1
		don't know	18.6	41.4	61.6
6	Do you know about Voluntary HIV Testing preceded with Counseling (VCT)?	yes	26.6	5.2	6.1
		no	56	48.9	29.1
		don't know	17.4	45.9	64.9

Source: Calculated by the author from the IDHS 2007 Datasets. Note: Don't know = 0; No = 1; Yes = 2.

Attitudes were obtained from four questions, namely, had respondents: 'ever talked to their husbands about prevention of HIV/AIDS'; 'kept a secret of AIDS infecting a family member'; 'been willing to care for a relative with AIDS'; 'had refused to have sex with husband when husband had sex with other women'. Then they were re-coded into 1=poor was indicated in the level of 1-4, and 2= better was indicated in the level of 5-8 (table 3.2)

Table 3.2 : Percentage distribution of variables composing attitude as dependent variable

No	Questions	DEPENDENT VARIABLES			
		ATTITUDE			
		Answer	DKI Jakarta (%)	Bali (%)	Pap ua (%)
1	Have you ever talk about the ways to prevent getting the virus that causes AIDS with your husband?	yes	32.2	18.3	31.5
		no	52.1	51.8	23.2
		don't know	15.7	29.9	45.5
2	If a member of your family got infected with the virus the causes AIDS, would you want it to remain a secret or not	yes	32.2	31.4	16.3
		no	52	54.1	22.5
		don't know	16.8	14.5	61.1
3	If a relative of yours became sick with the virus that causes AIDS, would you be willing to care for her or him in your own household?	yes	53.6	38.5	35.5
		no	26.4	29.3	9.4
		don't know	20.1	32.3	55
4	Wife and husband do not always agree on everything. Please tell me if you think a wife is justified in refusing to have sex with her husband when she knows her husband has sexual intercourse with other omen?	yes	91.8	80.9	54.4
		no	7.1	17.1	23.6
		don't know	1.1	1.4	22

Source: Calculated by the author from the IDHS 2007 Datasets. Note: Don't know = 0; No = 1; Yes = 2.

Behaviour was collected from only two questions as some questions relating to sexual behaviour were sensitive. As a result, several questions in the data were not available due to the limited responses of the respondents. The questions were included in the variable, namely, 'using condom', and 'obtaining condoms by themselves' (Table 3.3). Then they were re-coded into a binary response as well, 1=poor, indicated in the level of 0-1, and 2=better, indicated in the level of 2-4.

Table 3.3 : Percentage distribution of variables composing behavior

No	Questions	DEPENDENT VARIABLES			
		BEHAVIOR			
		Answer	DKI Jakarta (%)	Bali (%)	Papua (%)
1	The last time you had sexual intercourses, was a condom used?	yes	5.7	3.3	1
		no	84.7	90.9	72.5
		don't know	9.6	5.8	26.5
2	If you want to have sexual intercourse, could you yourself get a condom?	yes	23	40.7	9.7
		no	30.3	12.3	13.4
		don't know	46.7	46.9	76.9

Source: Calculated by the author from the IDHS 2007 Datasets. Note: Don't know = 0; No = 1; Yes = 2.

Table 3.1, 3.2, 3.3 present the distribution of some questions for women and their responses given by the respondents in the three provinces. Overall, general awareness of HIV/AIDS in those three provinces is high. Women in DKI Jakarta represent the highest level of knowledge related to KAB, indicated by the percentage of “yes” answers shown in the table. However, despite showing basic knowledge on how to avoid HIV/AIDS, the data also indicated that females held misconceptions with regards to HIV, identified from the doubtful responses when asked a set of questions about how to reduce their chances of getting the AIDS virus. Papua presented a highest percentage of misconceptions related to HIV/AIDS compared to Bali and DKI Jakarta. Furthermore, it was found that only 1% of ever married women in Papua reported using condoms the last time they had sexual intercourse, followed by Bali and DKI Jakarta (5.7% and 3.3% respectively). Overall, those three tables mixed picture with regards to the distribution of effective KAB – related HIV/AIDS in those three provinces.

b. Independent Variables

The control variables selected for the analysis include: education level, working status, wealth index, age of respondent, age at first sexual intercourse, media exposure, access to condom, access to information of HIV/AIDS, religion, place of residence. The following discussion shows the status of independent variables for the provinces considered in this study. Table 3.4 presents frequency distribution of independent variables

a) Education level

In this study, education level was recoding into two categories, those who had no schooling and attained only primary level were classified into primary and below (coded = 1), while those who finished their junior schooling and higher were grouped into secondary or above (coded=2). The different features occurred in women’s education between those three provinces. Papua and Bali had a similar education attainment, counted nearly 70% and more than 50% of women had not completed their primary school

respectively. The highest level of education was in DKI Jakarta with almost 70% of women attaining secondary level or above.

On the other hand, the level of the husband's education in those three provinces was quite high. The questions concerning the husbands' education were asked of the women in the sample. Nearly 100% of husbands in DKI Jakarta and Bali were educated people, whereas only 72.2% of husbands in Papua had secondary level or above. More detail will be reviewed in the discussion section of this chapter (computed by the author from the 2007 IDHS).

b) Working Status

Women's working status represents family income as well as the social status of a family. Different working status with different incomes will influence the quality of KAB. The influence of women's working status on KAB had similar patterns. Both were based on questions regarding whether they were working or not. They were divided in two categories: not working and working. The reason for choosing only two categories in this study was due to data limitation. The author assumed that if women had a job, it indicated their higher social status in society as compared to their counterparts who did not have a job. The majority of the husbands in those three provinces were working, (almost 100%). However the analysis showed that only around 50% of women were working (table 3.4, computed by the author from the 2007 IDHS).

c) Wealth Index

Frolich (2008, p. 10) analyzed the data from Kenya's 2003 Demographic and Health Survey (DHS) and presented that the wealth deciles were strongly associated with knowledge of HIV/AIDS. Data found in the 2007 IDHS showed huge differences in those three provinces in the level of individual

income. In this study, the wealth index was divided into three categories: lower income; middle income; and upper income. DKI Jakarta was the richest province with 87% of the population in the upper income bracket, followed by Bali and Papua (61.7% and 14.4% respectively) (computed by the author from the 2007 IDHS).

d) Age of Respondent

Overall, frequency distribution of the age of the sample characteristics identified had similar percentage in each province (see table 3.4). The highest number of respondents was in the 30-39 age groups (almost 40% for all the samples in those three provinces), while the lowest numbers were the respondents aged between 40 and 49 years account less than 30% for Papua and DKI Jakarta. The lowest percentage of age group of respondents in Bali is different with those two provinces. The age group 15 to 29 years count for the lowest percentage, 27.6%.

e) Age at First Sexual Intercourse

The 2007 IDHS included age at first marriage as one of the optional answers in the question for age at first sexual intercourse. This is arguable as first sexual intercourse will be done in the married union in Indonesia. In this analysis, age at first sexual intercourse was classified into two age groups: 10-18 years coded one and 19 or above coded two.

Papua has the highest percentage of women who first had sexual intercourse before the age of 19 (54.3%), compared to those women in Bali and DKI Jakarta who count for 36.8% and 30.1% respectively. This means that Papua has a higher probability of accumulated HIV/AIDS risk due to longer exposure of sexual intercourse (computed by the author from the 2007 IDHS).

f) Media exposure

In the 2007 IDHS, the information about women's access to the mass media was assessed by asking how often an individual read a newspaper/magazine, watched television, or listened to the radio. Access to the Information channel is important as it increases people's knowledge and awareness concerning what happens in their surroundings. Consequently, this has an effect on their behavior. In this analysis, women's exposure to mass media, that is, when a woman listened to the radio, watched television, or read newspapers or magazines at least once in a week, is defined as a binary variable.

To evaluate how much exposure was experienced, the question was categorized into two groups: The first category was coded by one as women never or less than once exposed by media exposure in a week, and the second category was valued by two to represent women frequently exposed or exposed once in a week by media exposure. Then, they were scored to get the value of total media exposure from television, radio and newspapers or magazines, in which 0-1 coded as one was in the range of low exposure, while 2-3 coded two was high exposure. From the distribution frequency, those three provinces indicated low exposure with Papua having the lowest exposure followed DKI Jakarta and Bali (88.4%, 60.4%, and 58.7%) (computed by the author from the 2007IDHS).

g) Access to Condoms

Access to condoms is one of the most critical factors in the spreading of the HIV/AIDS virus. Snelling et al. (2006, p. 428) found that there was a strong positive association between HIV/AIDS knowledge and condom use. The higher number of condom use indicated a greater knowledge of the population. In order to assess factors affecting condom usage among

the sexually active population, in the 2007 IDHS, ever-married women aged between 15 and 49 years in those three provinces were asked whether they knew a source where they could obtain condoms if they wanted them. The responses revealed they got condoms from government sectors, private sectors and others (friends/relatives, shops, family planning posts). In case of Papua, 74.8% of the respondents got condoms from health post, family planning posts, friends/relative, and shop whereas in case of Bali and DKI Jakarta it was mostly (counted 50.2% and 74.3% respectively) from private sectors such as private hospital, private maternity hospital, private maternity clinic, private clinic, private doctor, private midwife, private nurse, private village midwife, private pharmacy/drugstore, and other private medical sector.

h) Access to information of HIV/AIDS

Table 3.4 presents information regarding the source of HIV/AIDS from 251 married women in Papua, 587 in Bali, and 1,471 from Jakarta. Access to information about HIV/AIDS in this thesis was defined as being able to recall the HIV/AIDS messages heard or seen on radio, television, in print media, from health professionals, religious institutions, school teachers, community meetings, friends, relatives, work places and others.

In this study, the sources of getting information about HIV/AIDS was divided into three categories: electronic media (1); print media (2); and others to represent sources of getting information from health professional, religious institution, school or teacher, community meeting, friend or relative, workplace and internet (3).

The different background characteristics may give significant differences in those three provinces related to gaining information about HIV/AIDS. Papua, which is the most remote area compared to Bali and DKI Jakarta, is arguable in gaining information mostly from the source categorized as

“others” in the analysis such as health professional, religious institution, school or teacher, community meeting, friend or relative, workplace and internet rather than electronic media and printed media. Nearly 70% of Papuans got information about HIV/AIDS from others, which differs from the Balinese who got their information from the electronic media (at around 40%), and almost 50% of people in DKI Jakarta gain information about HIV/AIDS through reading newspapers and magazines (computed by the author from the 2007 IDHS).

i) Religion

Religion is another factor that affects the knowledge of an individual about HIV/AIDS, as in some religious authorities do not talk about sex. There was a variation in distribution of religion among ever-married women aged between 15 and 49 years in the 2007 IDHS by religion in those three provinces. Religion had six categories: Islam, Protestant, Catholic, Hindu, Buddhist, and other. In this research, religion was classified only into two categories: Islam (coded as ‘1’) as the major religion in Indonesia and to distinguish it from ‘other religions’ (coded as ‘2’) which include Protestantism, Catholicism, Buddhism, Hinduism, and Confucianism.

Muslims in DKI Jakarta constitute 91.5% of respondents, followed by 26.1% and 10.9% for Papua and Bali respectively. This is interesting because those three provinces have differences in major religion affiliation. As stated by Snelling et al. (2006, p. 424), religion affiliation affects sexual behaviour in teaching and practice. Butt (2005, p. 435) states that most Papuans are Christian (54.7% of the respondents), and they are influenced by church policy on appropriate sexual behavior. Nearly 90% of respondents in Bali are Hindu (computed by the author from the 2007 IDHS).

j) Place of Residence

Snelling et al. (2006, p. 424) emphasized that urban dwellers represented a lower level of risky sexual behavior due to the fact that in urban areas it is easier to access more accurate information about HIV/AIDS than it is in rural areas. In the 2007 IDHS, the place of residence was divided into two categories: urban and rural. It can be seen from the data provided in the table 3.4, DKI Jakarta was considered as all urban meaning that there was a missing cell for rural areas. Thus, as the author could not analyze more detail related to the variable of place of residence and this variable was omitted from the analysis.

Table 3.4 : background characteristics of respondent

Variables	Categories	Papua (%)	Bali (%)	DKI Jakarta (%)
Education level	1=primary or below	67.7	50.1	32.3
	2=secondary or above	32.3	49.9	67.7
Working status	1= not working	25.0	22.5	48.7
	2=working	75.0	77.5	51.3
Wealth index	1=lower income	71.2	20.6	4.3
	2= middle income	14.5	17.7	8.7
	3= upper income	14.3	61.7	87.0
Age of respondent	1= 15-29	36.8	27.6	33.6
	2= 30-39	37.9	40.6	37.7
	3= 40-49	25.3	31.8	28.7
Age at first sexual intercourse	1= 10-18	54.3	36.8	30.1
	2= 19 or above	45.7	63.2	69.9
Media Exposure	1=Low exposure	88.4	58.7	60.4

	2= High exposure	11.6	41.3	39.6
Access to condom	1= public sector	10.0	2.9	2.6
	2 = private sectors	15.2	50.2	74.3
	3=other resources (health post, family planning posts, friends/relative, and shop	74.8	46.9	23.1
Access to information of HIV/AIDS	1= electronic media	19.7	43.2	37.8
	2= print media	12.9	20.0	48.7
	3= others to represent sources of getting information from health professional, religious institution	67.4	36.8	13.5
Husband's Education level	1=primary or below	27.8	3.6	0.7
	2=secondary or above	72.2	94.4	99.3
Religion	1= Islam	26.1	10.9	91.5
	2= Other religions (Protestantism, Catholicism, Buddhism, Hinduism, and Confucianism	73.8	89.1	8.5
Place of Residence	1=urban	16.2	50.7	100
	2= Rural	83.8	49.3	0

Source: Calculated by the author from the IDHS 2007 Datasets

3.1.2 Bivariate Analysis

This section presents the analysis of two variables selected, both dependent and independent variables, in the study on the influence of socio-economic and demographic factors on Knowledge, Attitude and Behaviour related to HIV/AIDS. The detailed results of each section are presented in the Appendices 3.1-

Bivariate or cross-tabulation analysis was applied utilizing the Chi Square Test to determine the level of significant statistical correlation between different hypothesized predictors or variables and KAB. Those variables found to have significant statistical correlation with the dependent variables, were then analyzed using logistic regression using the enter method to investigate the pattern of correlation between them. Odds ratios from logistic regression analysis, particularly binary logistic regression, were implemented to identify the correlation between selected socio-economic and demographic factors and knowledge, attitude and behaviour as dependent variables. All of the statistical analyses have been performed using SPSS version 17.0 software.

The cross-tabulation analysis between independent variables and dependent variables, Papua, Bali and DKI Jakarta, showed a different statistically significant correlation. The results were not conclusive and in some cases were unexpected. This is understandable as those three provinces had significant differences in background characteristics. Further analysis will be presented separately based on the dependent variables in order to make the discussion easier.

a. Relationship between Independent variables and Knowledge

Table 3.5 presented the results of bivariate analysis of socio-economic and demographic characteristics of the respondents and knowledge, attitude and behaviour (KAB) in the three provinces which had a high prevalence of HIV/AIDS in Indonesia, namely, Papua, Bali and DKI Jakarta. Overall, almost all these independent variables, both socio-economic and demographic variables, were significantly associated with knowledge of

HIV/AIDS. Furthermore, the respondent's working status had no significant association with knowledge in DKI Jakarta, the wealth index in Bali, or the age of the respondent in Papua. Those three variables had a p value >0.05 but varied for each province. As seen in Table 3.5 the proportion of women aged between 15 and 49 years old in Papua, Bali, and DKI Jakarta varied in the distribution of knowledge.

Level of education

Based on measurement using the Chi-Square Test statistics, women's education showed a strong and statistically significant association with knowledge in Papua, Bali and DKI Jakarta with a p -value = 0.000. Specifically, women, who completed secondary level education or above, had a better knowledge in those three provinces (81.50% counted for Papua, and Bali and DKI Jakarta presented 85% and 94.20% respectively). A similar result was found by Mehajeb (2007, p. 39) in a research. The research identified that respondents with a lower level of education had a weak association with knowledge of HIV/AIDS, and influence on their attitude and behavior. Data also revealed that less educated women had a lower knowledge than those who finished secondary level or above in Papua and Bali, (75.90% and 18.50% respectively), while of a total illiterate women or those who completed primary education in DKI Jakarta, 69.50% of them had good knowledge about HIV/AIDS. This proved the hypothesis which stated that better educated women had better knowledge, compared with the less educated women. Further, the husband's education appeared to give a positive and significant impact on the women's knowledge, reflected by the large Chi Square value of 15.517^a, 24.244^a, 11.091^a for Papua, Bali and DKI Jakarta at $p=0.000$.

Working Status

Different associations occurred between the respondent's and husband's working status related to knowledge of HIV/AIDS in Papua and Bali. In those two provinces, the respondent's working status showed a high significant correlation with knowledge, in which it is reflected by p -value of 0.000 and high value of Chi square at 17.333^a, and 110.047^a respectively. This was not reflected in cross-tabulation analysis in DKI Jakarta,

in which the respondent's working status showed a negative correlation with knowledge of HIV/AIDS represented by the p -value > 0.005 (refers to table 3.50).

Wealth index

The variation in percentage occurred in cross-tabulation analysis between the wealth index and knowledge where Papua and Bali showed a significant correlation, while DKI Jakarta presented a negative correlation between wealth index and knowledge. As expected, lower rates of knowledge seemed to occur from women who were poor, both in Papua and Bali (73.60% and 74.40% respectively), while DKI Jakarta had a different result. It showed that the wealth index had a weak correlation with knowledge in Jakarta, in which both of lower income and upper women had a similar percentage in gaining better knowledge (45.30% and 54.70 respectively). Conversely, richer women in Papua had a poorer knowledge than they did in Bali and DKI Jakarta. Overall, Papua and DKI Jakarta showed a significant statistical correlation, presented by the p -value < 0.005 , while in Bali the wealth index had no significant effect on knowledge (p -value = 173).

Age of respondents

As expected, there was a strong and significant correlation between women's age and knowledge, but not for all the provinces. The highest occurrences of knowledge occurred in Bali and DKI Jakarta, while in Papua, women's age had no significant correlation. Table 3.5 also showed that the correlation of age varied among those provinces. DKI Jakarta showed the highest percentage rates compared with Bali, with both of them showing a similar p -value = 0.000. DKI Jakarta represented a higher knowledge than Bali in all age categories.

Age at first sexual intercourse

The association between age at first sexual intercourse and knowledge among women was found to be extremely significant with a p -value of 0.000 in those three provinces as expected. Although those three provinces had similar statistically significant calculations in its p -value = 0.000, they had a different percentage in each of the provinces.

Age at first sexual intercourse between the ages of 10 and 18 had a strong significant correlation with poor knowledge of HIV/AIDS, both in Papua and Bali (70.60% and 52.80% respectively). This is understandable because women who had sexual intercourse before the age of 20 had less of a chance to learn about HIV/AIDS than did older age groups. This condition did not occur in DKI Jakarta, where younger and older had a better knowledge (75.60 for age group 10-18 and 90.80 for 19 or above age groups).

Media exposure, access to condoms, access to information regarding HIV/AIDS

A strong association was found between those three variables and knowledge in the three provinces, where the p -value was exactly at 0.000, and the high values of Chi Square Test presented in the bivariate analysis. The odd ratios from media exposure were 29.648^a, 38.276^a, and 49.352^a for Papua, Bali and DKI Jakarta respectively. Access to condom represented higher values of Chi-square test compared to Media exposure, at 62.947^a, 191.499^a, and 219.517^a for those three provinces, Papua, Bali and DKI Jakarta respectively. The highest values of odd ratios was identified in access to information regarding HIV/AIDS, in which the values reached at 100.08^a, 337.715^a, and 682.367^a for Papua, Bali and DKI Jakarta respectively. The significant role of women's exposure to the media (reads newspapers/magazines, listens to radio and watches television), access to information regarding HIV/AIDS, and access to condoms are displayed in Table 3.5 as well.

Women's exposure to media was classified into two categories: (i) less frequently (never/less than once a week), and (ii) more frequent (at least once a week). Access to condoms was classified into three categories, and access to information about HIV/AIDS was categorized into three groups as well. The table depicts that women's exposure to media, access to condoms and access to HIV/AIDS information were strong indicators of knowledge related to HIV/AIDS. The strong association between those three variables to knowledge of HIV/AIDS ($p = .000$) showed that the more frequently women were exposed to media, the easier it was for them to get condoms, and the more information they got from the print and electronic media or others, the better off they were. The data revealed that the proportion of women who had better knowledge was higher among those

who were more frequently exposed to the media than among those who were less frequently exposed to media (more than 70% for those three provinces). Similarly, access to condoms and to information about HIV/AIDS, and the percentage of women who obtained condoms and HIV/AIDS information had a significant effect on better knowledge of HIV/AIDS as well.

Religion

Religion had an extremely strong correlation with knowledge in Papua with $p=0.000$, but it was weaker for Bali and DKI Jakarta, even though both p values still showed a significant association but a lower number in the Chi-Square value, at 5.927 and 6.341 for both.

Table 3.5 : Cross-tabulation Analyses between Socio-economic and Demographic Factors and Knowledge of Papua, Bali and DKI Jakarta

Cross-tabulation between Socio-economic and Demographic Variables and Knowledge								
No	Variables	Categories	Knowledge					
			Papua		Bali		DKI Jakarta	
			Poor	Better	Poor	Better	Poor	Better
1	Education	0 = Primary or below	20.00%	80.00%	1.70%	98.30%	0.40%	99.60%
		1 = Secondary or above	1.20%	98.80%	0.00%	100.00%	0.10%	99.90%
	Pearson Chi - Square	value p-value	16.099 ^a .000**		5.026 ^a .025**		1.622 ^a .203*	
2	Respondent's occupation	0 = not working	34.90%	65.10%	34.10%	59.30%	12.10%	87.90%
		1 = working	64.90%	35.10%	40.70%	59.30%	15.40%	84.60%

	Pearson Chi - Square	value	17.333 ^a		110.047 ^a		3.265 ^a	
		p-value	.000**		.000**		.071*	
3	Wealth Index	1 = Lower income	73.60%	26.40%	74.40%	25.60%	45.30%	54.70%
		2 = Middle indome	27.80%	72.20%	52.90%	47.10%	17.20%	82.80%
		3 = Upper income	57.20%	42.80%	39.20%	60.80%	11.90%	88.10%
	Pearson Chi - Square	value	71.495 ^a		1.852 ^a		58.607 ^a	
		p-value	.000**		.173*		.000**	
4	Age of respondents	1 = 15-29	54.30%	45.70%	29.00%	71.00%	10.50%	89.50%
		2 = 30-39	58.90%	41.10%	34.00%	66.00%	11.90%	88.10%
		3 = 40-49	58.70%	41.30%	54.00%	46.00%	19.90%	80.10%
	Pearson Chi - Square	value	.484 ^a		26.969 ^a		19.423 ^a	
		p-value	.785*		.000**		.000**	
5	Age at First Sexual Intercourse	1 = 10-18	70.60%	29.40%	52.80%	47.20%	24.40%	75.60%
		2 = 19 or above	41.70%	58.30%	31.20%	68.80%	9.20%	90.80%
	Pearson Chi - Square	value	21.205 ^a		26.759 ^a		60.068 ^a	
		p-value	.000**		.000**		.000**	

6	Media Exposure	0 = Low exposure	63.50%	36.50%	49.60%	50.40%	18.90%	81.10%
		1 = High exposure	10.30%	89.70%	24.30%	75.70%	6.00%	94.00%
	Pearson Chi - Square	value	29.648 ^a		38.276 ^a		49.352 ^a	
		p-value	.000**		.000**		.000**	
7	Access to condom	1 = Public sector	28.00%	72.00%	17.70%	82.40%	28.90%	71.10%
		2 = Private sector	7.70%	92.30%	12.60%	87.40%	5.90%	94.10%
		3 = Others	71.30%	28.70%	68.70%	31.30%	37.10%	62.90%
	Pearson Chi - Square	value	62.947 ^a		191.499 ^a		219.517 ^a	
p-value		.000**		.000**		.000**		
8	Access to information of HIV/AIDS	1 = Electronic media	18.40%	81.60%	15.00%	85.00%	8.80%	91.20%
		2 = Printed Media	3.10%	96.90%	2.60%	97.40%	1.30%	98.70%
		3 = Others	57.20%	42.80%	87.00%	13.00%	72.40%	27.60%
	Pearson Chi - Square	value	100.308 ^a		337.715 ^a		682.367 ^a	
p-value		.000**		.000**		.000**		
9								
	Husband's education	0 = Primary or below	77.10%	22.90%	90.50%	9.50%	50.00%	50.00%
							13.60%	86.40%
		1 = Secondary	49.70%	50.30%	37.10%	62.90%		

		or above						
	Pearson Chi - Square	value	15.517 ^a		24.244 ^a		11.091 ^a	
		p-value	.000**		.000**		0.001*	
10	Religion	1 = Islam	21.20%	78.80%	25.00%	75.00%	14.40%	85.60%
		2 = Others	69.90%	30.10%	40.70%	59.30%	6.30%	93.70%
	Pearson Chi - Square	value	47.139 ^a		5.927 ^a		6.341 ^a	
		p-value	.000**		.015**		0.012*	

Source: Calculated by the author from the IDHS 2007 Datasets. Notes: ** indicates significant at $p < 0.05$, * indicates not significant at $p < 0.01$

b. Relationship between Independent Variables and Attitude

Table 3.6 shows that the relationship between selected socio-economic and demographic factors and attitude had weak correlation. From ten predictor variables provided, there were six variables which had a totally negative correlation with attitude in the three provinces selected, namely: the respondent's occupation; age of respondents; age of first sexual intercourse; media exposure; and the husband's occupation and education. Education counted for little of the respondent's distribution as only 1.2% of respondents who finished secondary level or above in Papua had a poor knowledge, and 0.00% of respondents in Bali who completed secondary or above had a poor knowledge. The insignificant correlation also occurred in wealth index, access to condoms, and access to HIV/AIDS information as well. Thus, education and the wealth index could be stated as having a negative correlation to attitude as well. The only variable which had a significant correlation with attitude was religion which only occurred in Papua, having a p -value = 0.001. Bali and DKI Jakarta did not show a strong association between attitude and religion, represented by a p -value > 0.05 .

Table 3.6 : Cross-tabulation Analyses between Socio economic and Demographic Factors and Attitude of Papua, Bali and DKI Jakarta

Cross-tabulation between Socio-economic and Demographic Variables and Knowledge								
No	Variables	Categories	ATTITUDE					
			Papua		Bali		DKI Jakarta	
			Poor	Better	Poor	Better	Poor	Better
1	Education	0 = Primary or below	20.00%	80.00%	1.70%	98.30%	0.40%	99.60%
		1 = Secondary or above	1.20%	98.80%	0.00%	100.00%	0.10%	99.90%
	Pearson Chi - Square	value p-value	16.099 ^a .000**		5.026 ^a .025**		1.622 ^a .203*	
2	Respondent's occupation	0 = not working	9.50%	90.50%	1.50%	98.50%	0.00%	100.00%
		1 = working	15.40%	84.60%	0.70%	99.30%	0.50%	99.50%
	Pearson Chi - Square	value p-value	1.370 ^a .242*		.887 ^a .346*		3.814 ^a .051*	
3	Wealth Index	1 = Lower income	19.10%	80.90%	3.30%	96.70%	3.10%	96.90%
		2 = Middle income	2.70%	97.30%	0.00%	100.00%	0.00%	100.00%
		3 = Upper income	0.00%	100.00%			0.20%	99.80%
	Pearson Chi - Square	value p-value	13.675 ^a .001**		10.941 ^a .004*		.000**	

4	Age of respondents	1 = 15-29	15.20%	84.80%	1.20%	98.80%	0.00%	100.00%
		2 = 30-39	9.50%	90.50%	0.00%	100.00%	0.00%	100.00%
		3 = 40-49	18.80%	81.30%	1.10%	98.90%	0.70%	99.30%
	Pearson Chi - Square	value	9.938 ^a		2.787 ^a		7.465 ^a	
	p-value	230*		.248*		.024**		
5	Age at First Sexual Intercourse	1 = 10-18	16.20%	83.80%	0.90%	99.10%	0.20%	99.80%
		2 = 19 or above	11.30%	88.70%	3.00%	99.20%	0.20%	99.80%
		Pearson Chi - Square	value	1.233 ^a		.022 ^a		0.015 ^a
		p-value	267*		.881*		.902**	
6	Media Exposure	0 = Low exposure	15.40%	84.60%	1.40%	98.60%	0.50%	99.50%
		1 = High exposure	3.40%	96.60%	0.00%	100.00%	0.00%	100.00%
		Pearson Chi - Square	value	3.034 ^a		3.537 ^a		2.633 ^a
		p-value	.082*		.060**		.105*	
7	Access to condom	1 = Public sector	4.00%	96.00%	0.00%	100.00%	0.00%	100.00%
		2 = Private sector	0.00%	100.00%	0.00%	100.00%	0.00%	100.00%
		3 = Others	18.10%	81.90%	1.80%	98.20%	1.20%	98.80%
	Pearson Chi - Square	value	10.904 ^a		5.721 ^a		13.342 ^a	
	p-value	.004**		.057*		.001**		

8	Access to information of HIV/AIDS	1 = Electronic media	0.00%	100.00%	0.00%	100.00%	0.00%	100.00%
		2 = Printed Media	0.00%	100.00%	0.00%	100.00%	0.00%	100.00%
		3 = Others	20.70%	79.30%	2.30%	97.70%	2.00%	98.00%
	Pearson Chi - Square	value	19.506 ^a		8.662715 ^a		25.509 ^a	
		p-value	.000**		.013**		.000**	
9	Husband's education	0 = Primary or below	18.60%	81.40%	0.00%	100.00%	0.00%	100.00%
		1 = Secondary or above	12.20%	87.80%	0.90%	99.10%	0.30%	99.70%
	Pearson Chi - Square	value	1.732 ^a		.187 ^a		.027 ^a	
		p-value	.188*		.665*		0.868*	
	10	Religion	1 = Islam	1.50%	98.50%	0.00%	100.00%	0.30%
2 = Others			18.40%	81.60%	1.00%	99.00%	0.00%	100.00%
Pearson Chi - Square		value	11.329 ^a		.617 ^a		.376 ^a	
		p-value	.001**		.432*		0.540*	

Source: Calculated by the author from the IDHS 2007 Datasets. Notes: ** indicates significant at $p < 0.05$, * indicates not significant at $p < 0.01$.

c. Relationship between Independent Variables and Behavior

Behavior in this study is defined as how respondent's response to the questions related to safe sex to avoid the virus of HIV. Due to the limitation of the respondent's responses to the question related sexually risk behavior in the 2007 IDHS, there were only two questions formulated a behavior index. Table 3.7 presented a cross-tabulation between

selected socio-economic and demographic factors and behaviour related to HIV/AIDS. Similar characteristics with knowledge's cross-tabulation, and the correlation between selected socio-economic and behaviour related to HIV/AIDS varied in the Chi Square value which indicated a strong significance of those variables to behaviour.

The level of the respondent's education, wealth index, media exposure, access to condoms and to HIV/AIDS information were found to have strong associations with behaviour related to HIV/AIDS. The respondent's education had a statistically significant value in those three provinces at $p = 0.000$, while the Chi Square Test showed a different value in each province. In Papua, the percentage of illiterate women who had a poor knowledge was much higher than those who had a better knowledge (90.50 and 9.50 respectively). On the contrary, the percentage of educated women who had a poor knowledge in Papua was higher than those who had a better knowledge. The scores from Bali indicated that educated women were positively correlated to knowledge, and this was presented by the high value of Chi Square = 133.030 and the p value = 0.000. As expected, the condition occurred in DKI Jakarta as well. The educated women who had poor knowledge was only 16.40% compared to 83.60% educated women who had better knowledge. Thus, education had positive correlation with behavior.

As expected, within the category of educated women the percentage of women with better knowledge was higher than women with poor knowledge. It proved the hypothesis in the previous chapter in which better education associated to better knowledge. Overall, women's education had a strong significant relationship with knowledge of HIV/AIDS in the three provinces. The husband's education seemed to have a significant correlation with the knowledge of the respondent. From Table 3.7, it can be seen that the husband's education has p values = 0.000 for those three provinces.

Table 3.7 showed that working status was significantly associated with behavior in two provinces, Papua and Bali, at $p=0.000$. Those with a better income showed a higher proportion of behavior and those of poor income showed the least. However, the wealth index in DKI Jakarta was not strongly correlated to behavior, at $p>0.05$. Household

wealth status was used as a proxy for the individual income in this study. At bivariate level, a higher wealth status was significantly associated with sexually risk behavior of HIV/AIDS ($p=0.000$). Women with higher income tend to behave carefully and avoid risk behavior of HIV/AIDS by using condom when they had sexual intercourse and obtained condom by themselves. The age of respondents was significantly correlated with sexually risk behaviors in Bali and DKI Jakarta, with a p value= 0.000, but not in Papua. Women in youngest age groups in Bali and DKI Jakarta tend to have better behavior rather than older age group related to HIV/AIDS. They were more careful than the older age groups in preventing their sexually risk behavior related to HIV/AIDS. There was no close relationship between age and behaviour in Papua, presented by the p -value= 0.839. Similar to the cross-tabulation conducted for knowledge, was the result for age at first sexual intercourse, access to condoms and to HIV/AIDS information, and religion had a strong significant correlation to behaviour, with a p value <0.05 .

Table 3.7: Cross-tabulation analyses between socio economic and demographic factors and Behavior of Papua, Bali and DKI Jakarta

Cross-Tabulation between Socio - economic and Demographic Variables and Behavior								
No	Variables	Categorize	BEHAVIOR					
			Papua		Bali		DKI Jakarta	
			Poor	Better	Poor	Better	Poor	Better
			%	%	%	%	%	%
1	Education	0 = Primary or below	90.50%	9.50%	71.10%	28.90%	46.90%	53.10%
		1 = Secondary or above	51.90%	48.10%	23.50%	76.50%	16.40%	83.60%
	Pearson Square	Chi - value	47.742 ^a		133.030 ^a		155.410 ^a	
		p-value	.000**		.000**		.000**	

2	Respondent's working status	0 = not working	61.30%	38.70%	39.40%	60.60%	24.10%	75.90%
		1 = working	83.50%	16.50%	49.90%	50.10%	28.30%	71.70%
		Pearson Chi - Square value	13.415 ^a		4.520 ^a		3.280 ^a	
		p-value	.000**		.034**		.070*	
3	Wealth Index	1 = Lower income	89.30%	10.70%	83.50%	16.50%	53.10%	46.90%
		2 = Middle indome	52.80%	47.20%	64.40%	35.60%	48.40%	51.60%
		3 = Upper income	44.40%	55.60%	30.40%	69.60%	22.70%	77.30%
		Pearson Chi - Square value	49.608 ^a		117.269 ^a		64.890 ^a	
4	Age of respondents	1 = 15-29	79.30%	20.70%	37.00%	63.00%	22.70%	77.30%
		2 = 30-39	75.80%	24.20%	40.20%	59.80%	25.30%	74.70%
		3 = 40-49	78.10%	21.90%	65.80%	34.20%	31.80%	68.20%
		Pearson Chi - Square value	.351 ^a		37.313 ^a		10.141 ^a	
5	Age at First Sexual Intercourse	1 = 10-18	85.30%	14.70%	61.60%	38.40%	37.00%	63.00%

	Pearson Chi Square	2 = 19 or above	68.70%	31.30%	39.20%	60.80%	21.70%	78.30%
		value	9.904 ^a		27.319 ^a		37.647 ^a	
		p-value	.002**		.000**		.000**	
6	Media Exposure	0 = Low exposure	82.90%	17.10%	55.70%	44.30%	33.40%	66.60%
		1 = High exposure	37.90%	62.10%	35.50%	64.50%	15.40%	84.60%
	Pearson Chi Square	value	29.902 ^a		23.084 ^a		58.872 ^a	
		p-value	.000**		.000**		.000**	
7	Access to condom	1 = Public sector	32.00%	68.00%	5.60%	94.40%	18.40%	81.60%
		2 = Private sector	5.30%	94.70%	2.00%	98.00%	5.90%	94.10%
		3 = Others	98.40%	1.60%	98.60%	1.40%	92.60%	7.40%
	Pearson Chi Square	value	191.652 ^a		545.823 ^a		1005.199 ^a	
		p-value	.000**		.000**		.000**	
8	Access information of HIV/AIDS	1 = Electronic media	53.10%	46.90%	35.40%	64.60%	30.00%	70.00%
		2 = Printed Media	46.90%	53.10%	10.30%	89.70%	13.70%	86.30%
		3 = Others	90.50%	9.50%	81.50%	18.50%	60.80%	39.20%
	Pearson Chi Square	value	50.614 ^a		179.977 ^a		185.262 ^a	

		p-value	.000**		.000**		.000**	
10	Husband's education	0 = Primary or below	98.60%	1.40%	90.90%	9.10%	70.00%	30.00%
		1 = Secondary or above	69.60%	30.40%	45.80%	54.20%	26.00%	74.00%
	Pearson Chi Square	value	24.421 ^a		17.312 ^a		9.949 ^a	
		p-value	.000**		.000**		.002**	
11	Religion	1 = Islam	50.80%	49.20%	27.70%	72.30%	27.30%	72.70%
		2 = Others	87.00%	13.00%	49.90%	50.10%	15.10%	84.90%
	Pearson Chi Square	value	36.378 ^a		11.440 ^a		8.869 ^a	
		p-value	.000**		.001**		.003*	

Source: Calculated by the author from the IDHS 2007 Datasets. Notes: ** indicates significant at $p < 0.05$, * indicates not significant at $p < 0.05$

3.1.3 Multivariate Analysis

Multivariate analysis is used in this analysis as bivariate analysis only analyses two variables which do not imply a significant causal relationship of the other independent variables (Pallant, 2005, p.5). Thus, multivariate analysis is necessary to explore the effect of the predictive ability of more than one selected independent variable which have an influence on a dependent variable (Pallant, 2005, p. 5). The multiple regression analysis method adopted in the present study is multiple logistic regressions. This method would

allow the identification of the effect of each of the selected independent variables on KAB, and controls the effects of other independent variables.

This section aims to analyze the differentials in the utilization of KAB when its correlation with the predictor variable is adjusted for the simultaneous effects of the different characteristics of the women, their husbands and their household related variables. A dichotomous logistic regression was applied to identify which factors have a significant correlation with KAB from the three provinces selected. Tables 3.8 and 3.9 present the results of the multivariate logistic regression in terms of coefficients, level of significance, and odds ratios by each of the hypothesized predictors of KAB. It is surprising that almost all the predictor variables have no significant correlation with attitude related to KAB, and the pattern of significant results between knowledge and behavior is similar.

a. Multivariate analysis of factors affecting Knowledge related to HIV/AIDS

Table 3.8 and 3.9 below showed the result of multivariate analysis of selected independent variables and knowledge. In this analysis, logistic regression and the level of significance (*p*-values) of each of the statistics were presented to measure the association between each independent variable and knowledge, attitude and behavior. Logistic regression coefficients were used to determine which factors increased knowledge or behavior and which factors reduced it (Pallant, 20007, p. 175). A positive logistic regression coefficient for any category of independent variable indicated a better knowledge or behavior of HIV/AIDS, and it was related to the value of the odds ratio greater than one. The odds ratio was relative to the reference categories. A statistically significant odds ratio was illustrated if the odds ratio > 1.00. This means that there was a positive effect on the independent variables. On the contrary, if the odds ratio was < 1.00, this indicated a negative effect on the independent variables (Khuda et al. 2000, p. 46).

Of the bivariate analysis, it was found that there were no predictor variables which had correlation with attitude related to HIV/AIDS, excepted religion in Papua. Then, the study would only analyze two dependent variables, namely knowledge and behavior.

Those dependent variables are categorized as dichotomous response variables which were assigned the values of 1 = poor, and 2 = better, both for knowledge and behaviour. Regarding the independent variables, the variables which showed significant relationships in Papua, Bali and DKI Jakarta were different. However, from the independent variables analyzed in the bivariate analysis, only the husband's occupation was excluded; the other variables were included in the regression analysis. All the independent variables were measured as dichotomous variables. The number of cases involved in the analysis for Papua was 722, and the value of -2 log likelihood was 172.333^a. Bali and DKI Jakarta counted for the number of selected cases included in the analysis and the value of -2 log likelihood were 1301, and 353.822^a, and 1722 and 594.411^a respectively.

The study presented two models of multivariate analysis. The first model entered all the independent variables showing a significant correlation in the bivariate analysis (Table 3.5), while the second model excluded the non-significant variables shown in the first model (Table 3.6).

The respondent's working status, age at first sexual intercourse, media exposure, husbands' education, and religion presented no strong correlation with knowledge in Papua, and presented with the p – value >0.05 . The wealth index, access to condoms and to HIV/AIDS information had a significant relationship with knowledge. Education had a strong relationship with knowledge in Papua and DKI Jakarta. The results of the first model in Table 3.8 showed that women's educational level had a positive and significant effect on knowledge in Papua and DKI Jakarta. The odds ratio implied that women with a higher level of education indicated having a higher level of knowledge than less educated women did, both in Papua and DKI Jakarta. Compared to the illiterate or women who only completed the primary education level in Papua, women with secondary or higher educational levels were 4.063 times more likely to be knowledgeable about HIV/AIDS. This variable's significant result occurred not only in Papua but also in DKI Jakarta. The odds ratio presented that educated women were 1.704 times likely to be knowledgeable about HIV/AIDS than uneducated women. On the other hand, the educational level had

almost no relationship with knowledge in Bali (p -value = 0.133) even though the odds ratio presented was 1.628 times higher than that of the un-educated women.

All of these variables would be further analyzed in the second model to reveal its exact relationship. This is a surprising result as it is not consistent with the bivariate analysis in which those variables represented a highly significant correlation with knowledge. In contrast those variables found in this analysis had less or almost no significant correlation. Bali had three significant variables, namely: age of respondent, access to condoms and to HIV/AIDS information, while DKI Jakarta had: age at first sexual intercourse, access to condoms and to information regarding HIV/AIDS as their significant variables. Furthermore, Papua had education, access to condom, access of information regarding HIV/AIDS and wealth index.

Table 3.8 : The multivariate Analysis between Independent Variables and Knowledge

Variable	Categories	PAPUA		BALI		DKI JAKARTA	
		Odds Ratio (Exp (B))	Sig value (p)	Odds Ratio (Exp (B))	Sig value (p)	Odds Ratio (Exp (B))	Sig value (p)
Constant		9.677	0.046	1.628	.133	.701	.760
Education	0 = primary or below 1 = secondary or above	4.063	0.005	1.628	0.133	1.704	.040
Respondent's working status	0 = not working 1 = working	0.658	0.400	0.863	0.678	.780	.261
Wealth index	1 = lower income		0.202		0.321		.104
	2 = middle income	1.636	0.392	1.434	0.399	2.825	.033
	3 = upper income	4.520	0.085	1.825	0.133	1.858	.123
Age of respondents	1 = 15 - 19				0.639		.740
	2 = 20 - 39	na		0.723	0.371	.814	.463
	3 = 40 - 49			0.733	0.436	.836	.538
Age at first sex	1 = 10 - 18						

intercourse	2 = 19 or above	2.057	0.067	1.136	0.662	1.748	.019
Media exposure	1 = low exposure 2 = high exposure	4.365	0.600	1.745	0.066	1.572	.086
Access to condom	1 = public sectors 2 = private sectors 3 = others		0.038		0.000		.000
		0.987	0.989	.717	.678	1.981	.163
		0.255	0.035	.183	.029	.605	.302
Access to inform of HIV/AIDS					.000		.000
	1 = electronic media 2 = printed media 3 = others		0				
		3.968	0.183	2.562	.123	3.923	.000
		0.156	0.001	.046	.000	.046	.000
Husband's education	0 = primary or below 1 = secondary or above						
		0.412	0.086	4.871	.124	4.459	.138
Religion	1 = Islam 2 = others						
		0.493	0.187	.818	.680	1.064	.904
Total number of cases -2 Log likelihood							

Variable(s) entered on step 1: Education, Occupation, Wealth Index, Age of respondents, Age at first sexual intercourse, Media exposure, Access of condom, Access information of HIV/AIDS, Husband's education, religion. Source: Calculated by the author from the IDHS 2007 Datasets

As stated in the previous explanation, those three provinces have different variables entered in the second analysis, as a different level of significance was found in the first analysis (Table 3.9). In the second analysis, wealth index was not significantly related to knowledge only in Papua (p -value.0.05). Lower income women were taken as the reference category. The results indicated that middle income women were 0.610 times more likely to be more knowledgeable than women on a lower income. Similarly, the richest women were 2.671 times more likely to be more knowledgeable concerning HIV/AIDS.

Table 3.9 : The Multivariate Analysis between Independent Variables and Knowledge

Variable	Categories	PAPUA		BALI		DKI JAKARTA	
		Odds Ratio (Exp (B))	Sig value (p)	Odds Ratio (Exp (B))	Sig value (p)	Odds Ratio (Exp (B))	Sig value (p)
Constant		4.842	0.017	6.042	0.05	8.237	.000
Education	0 = primary or below 1 = secondary or above	4.228	.001			.546	.011
Wealth index	1 = lower income 2 = middle income 3 = upper income	1.841 6.259	.650 .257 .278				
Age of respondents	1 = 15 - 19 2 = 20 - 39 3 = 40 - 49			.774 .532	.059 .331 .020		
Age at first sex intercourse	1 = 10 - 18 2 = 19 or above					1.859	.008
Access to condom	1 = public sectors** 2 = private sectors 3 = others**	1.417 .278	.015 .703 .028	1.499 .107	.000 .525 .000	2.063 .598	.000 .144 .298
Access to inform of HIV/AIDS	1 = electronic media 2 = printed media 3 = others	4.696 .148	.000 .119 .000	3.459 .039	.000 .038 .000	4.190 .046	.000 .000 .000
Total number of cases							
-2 Log likelihood							

a. Variable(s) entered on step 1: Education, Wealth Index, Age of respondents, Age at first sexual intercourse, Access of condom, Access information of HIV/AIDS,

Furthermore, similar significant values occurred in the access to condoms and access to information about HIV/AIDS. Both of these variables had different significances. Public sectors were chosen as the reference categories in the access to condoms factor. The results showed that women who preferred to access condoms from private sectors were 1.701 times more likely to have a better knowledge than women who accessed them from public sectors. Access to condoms from other resources such as pharmacies, friends, health posts and shops were 0.227 times more likely to contribute to having a better knowledge. In Bali, the odds ratio for private sectors was 1.499 times more likely contribute to have better knowledge while others represented 0.107 times. The results of the odds ratio in DKI Jakarta was almost similar to that of Bali, in which women who access to condom from private sectors were presented as 2.062 times more likely to have better knowledge than access to condoms from other resources such as pharmacies, friends, health posts and shops were 0.598 times more likely to have better knowledge than public sectors. Similarly, access to information about HIV/AIDS indicated a positive correlation with knowledge about HIV/AIDS. In Papua, the odds of receiving knowledge from print media were 4.696 times that of receiving it through electronic media and gaining knowledge from others (health professional, religious institution, school/teacher, community meeting, friend/relative, work place and internet) represented 0.148 times more likely to have better knowledge than printed media. DKI Jakarta had a similar odds ratio result: it received information about HIV/AIDS through printed media was 4.190 times and received information about HIV/AIDS through other resources was 0.048 times more likely to have better knowledge with the similar categories. Both of these variables had a strong association with knowledge, which was represented by the p value <0.05 . The other variable was educational level. In the second model multivariate analysis, education had a stronger relationship than it did in the first model. The odds ratio of women with secondary or a higher educational level represented family planning that it was 4.228 times more likely that they would have a better knowledge in relation to HIV/AIDS.

3.1.3.2. Multivariate Analysis of Factors Affecting Behavior related to HIV/AIDS

Due to the fact that there were no variables which had a significant correlation with attitude, multivariate analysis for attitude was ignored. The next analysis was multivariate analysis for behavior using the first model of multivariate analysis. Due to the result of the first model were not varies and represented the high significant values of p-values <0.05, the second model was of multivariate analysis was omitted for behavior. In this analysis, there was another surprising result. In Papua, there was only one variable which had a significant relationship with behavior, namely, access to condoms. The odds ratio for this variable, however, was 4.472 times from the reference category. This meant that women who preferred to get condom from private sectors were 4.472 times more likely to have better behavior meaning they tend to care and avoid sexually risk behaviors related to HIV/AIDS by using condom for safer sex. Alternatively, women who accessed condoms from others were only counted as 0.006 times more likely to have better behavior. Bali had a similar result to Papua, in which only access to condoms had a significant correlation with behavior. The odds ratio for accessing to condom in private sectors represented 0.0855 times more likely that they would have better behavior than accessing to condom in the public sectors. Women who accessed condoms from other resources seemed to have a similar chance of having comparable behaviour as women who accessed condoms from public sectors.

Table 3.10 : The multivariate analysis between independent variables and behavior

Variable	Categories	PAPUA		BALI		DKI JAKARTA	
		Odds Ratio (Exp (B))	Sig value (p)	Odds Ratio (Exp (B))	Sig value (p)	Odds Ratio (Exp (B))	Sig value (p)
Constant Education	0 = primary or below	.728	.878	123.836	.146	13.839	.057

Respondent's working status	1 = secondary or above	1.519	.629	.984	1.016	1.588	.083
	0 = not working						
	1 = working	.452	.320	.744	.714		
Wealth index	1 = lower income		.573		.345		.089
	2 = middle income	2.790	.291	.971	.979	.288	.032
	3 = upper income	1.454	.728	2.941	.289	.370	.047
Age of respondents	1 = 15 - 19				.081		.105
	2 = 20 - 39			.392	.303	.702	.196
	3 = 40 - 49			.112	.030	.534	.034
Age at first sex intercourse	1 = 10 - 18						
	2 = 19 or above	1.239	.777	1.362	.659	1.129	.627
Media exposure	1 = low exposure						
	2 = high exposure	1.352	.764	1.280	.725	2.526	.000
Access to condom	1 = public sectors**		.000		.000		.000
	2 = private sectors	4.472	.156	.855	.911	2.132	.110
	3 = others**	.006	.000	.000	.000	.011	.000
Access to inform of HIV/AIDS	1 = electronic media		.460		.828		.394
	2 = printed media	.366	.355	1.354	.757	1.247	.382
	3 = others	.338	.238	.699	.643	.781	.441
Husband's education	0 = primary or below						
	1 = secondary or above	5.692	.282	.518	.791	1.159	.903
Religion	1 = Islam						
	2 = others	.624	.570	1.215	.866	1.031	.943
Total number of cases							
-2 Log likelihood							

a. Variable(s) entered on step 1: Education, Occupation, Wealth Index, Age of respondents, Age at first sexual intercourse, Media exposure, Access of condom, Access information of HIV/AIDS, Husband's education, religion.

As expected, women's media exposure had the strongest correlation to behavior in DKI Jakarta, with the p -value=0.000. On the other hand, media exposure was identified had insignificant correlation with behavior in Papua and Bali, indicated by the p -value >0.05. The mass media had a significant association with behavior related to HIV/AIDS, and the relationship was positively skewed. Women who were exposed to the media more frequently were more likely to have a better knowledge of HIV/AIDS. by an odds of 2.526 compared to women who were less frequently exposed to mass media. The other variables were not significant to behavior in those three provinces which had the highest prevalence of HIV/AIDS in Indonesia.

3.1.4 External Factors Influencing Knowledge, Attitude, and Behavior

The findings from the 2007 IDHS data utilizing univariate, bivariate and multivariate analyses indicate that HIV/AIDS knowledge alone does not determine sexual behavior; other factors work to make women who are knowledgeable about the risks of HIV infection behave contrary to their knowledge. As stated in Chapter Two, another possible explanation could be that several external factors influencing KAB are related to HIV/AIDS in those three provinces which have a high prevalence of HIV/AIDS. They are factors such as culture, tourism, epidemic stages and migration. After analyzing several predictor factors from the 2007 IDHS and identifying that there was no correlation with Attitude, it can be concluded that strong correlations from those external factors could be the major influences on KAB in those three provinces.

Several of the 'don't know' responses may be explained by very strong cultural beliefs in the power of not having sex at all, having single sexual partners, and of using condoms. Caldwell stated that beliefs about death, the merits of polygamous marriage, early age at marriage, and about the health-giving aspects of sexual activity, have all affected patterns of HIV transmission in sub-Saharan Africa (cited in Butt et al. 2002, p. 3). Those hypotheses could likely occur in Indonesia, particularly in Papua, which still has strong cultural beliefs and the highest percentage of responses when asked whether having just one uninfected partner, no sexual partner at all, or using condom during sexual intercourse

(60.7%, 56.6%, and 57% respectively) could reduce their chance of getting HIV/AIDS. In a study, Butt et al. (2002, p. 3) identified that culturally valued practices, such as polygyny (a woman who has more than one husband) had the potential to increase the risk of HIV transmission through unprotected sexual intercourse.

Butt et al. (2002, p. 3) found in a study that the myths and misconceptions about sexuality still occurred. For example, one Papuan society believes that an additional wife is a cultural form of promiscuous sexuality (Butt et al. 2002, p. 3). The implication of this finding is that HIV/AIDS education initiatives must be targeted at women in rural areas in Papua which still has strong cultural beliefs about sexual life. This could be done by providing them with the necessary knowledge that could protect them from HIV/AIDS. The 'don't know' responses may also be indications of women receiving HIV/AIDS information from many sources, some of which could be false and contradictory. The other misconceptions were identified among female sex workers (FSW) and their clients in Bali (Fajans et al. 1995, p. 410). Tourists and commercial sex workers have a close relationship due to the fact that most of the tourists are far from their partners/wives during their vacations. Many of the tourist clients had considerable travel experience and had paid for sex in other parts of Indonesia, such as in Bali (Fajans et al. 1995, p. 758). It was reported that among CSW and clients considered as at a high risk of HIV/AIDS, 71% of respondents had done something to reduce their risk by looking 'clean', and by taking some antibiotics, vitamins or herbal potions (*jamu*), before or after having sex with FSWs. Although most of these men understand that condoms can prevent HIV/AIDS, they view condom use as unnecessary due to their use of these other strategies.

Hugo (2001, p. 155) emphasized that a crucial correlation existed between HIV infection and the world of work. The study showed that mobility may not necessarily be associated with the increasing rate of disease prevalence, but the behavior of some mobile groups that place them at higher risk of infection. Hugo argued that the correlation between

migrant workers and the sex industry was important in the spread of HIV/AIDS. In that study, it was identified that much less than a half of the clients of FSWs were using condoms. The 'double diffusion' of the disease was argued as the FSWs and clients not only returned to their home areas regularly but also changed their place of work frequently as well. The lower level of condoms used could be explained by the previous explanation. Furthermore, when those migrant workers were far from their wives, and sex was considered as primary necessity, FSWs could be used as the option.

3.1.5 Conclusion

Some strong selected predictors of KAB have been identified in this chapter. There were eleven variables selected in the bivariate analysis which had a significant influence on KAB related to HIV/AIDS: education (both respondents and husband); working status (both respondents and husband); age; age at first sexual intercourse; wealth index; media exposure; access to condoms; access to information about HIV/AIDS;; and religion. Of those selected variables, several had a significant correlation with KAB in the logistic regression analysis. Surprisingly, there was no variable that influenced the attitude of HIV/AIDS. There are for variables which had significant on knowledge in Papua, namely: education; wealth index; access to condoms and access to information regarding HIV/AIDS. As significant variables with knowledge, Bali had: age of respondents; access to condoms; and access to information regarding HIV/AIDS. Furthermore, DKI Jakarta had: education; age at first sexual intercourse; access to condoms and access to information about HIV/AIDS. In the multivariate analysis between predictor variables and behavior, there were only five variables identified had significant correlation, namely: wealth index, age of respondents, age at first sexual intercourse, access to condoms, and access to information regarding HIV/AIDS. From those different variables, it can be concluded that access to condoms and access to HIV/AIDS information appeared to be major factors influencing knowledge and behaviour, with attitude being excluded.

Some of the hypotheses had negative correlation with the finding result. Furthermore, it was found that one variable cannot be applied in different provinces; such as education predicted had strong correlation in the multivariate analysis, but it was only implied in

DKI Jakarta. Another factors stated in the previous chapter are predicted to have significant correlation, such as culture, migration, and epidemic stages due to those three provinces have different background characteristics. The differences on the background characteristics were predicted influencing on the difference predictors factors on the KAB in Papua, Bali and DKI Jakarta.

CHAPTER FOUR

CONCLUSION

4.1 Major Findings

4.1.1 Data Analysis

This study examined the relationship of selected socio-economic and demographic factors, with Knowledge, Attitude and Behavior (KAB) regarding HIV/AIDS among women aged between 15 and 49 years from the three provinces in Indonesia which had the highest prevalence of HIV/AIDS based on the data found in a report of Ministry of Health, 2010 . The data used for analyzing these indicators were based on the 2007 Indonesia Demographic and health Survey (IDHS) and a report of Ministry of Health, 2010. Furthermore, based on theoretical framework as outlines in Chapter 2, this study considered Knowledge, Attitude and Behavior (KAB) as the dependent variables which are influenced by many other demographic and socio-economic variables (considered as independent in the framework).

In addressing the relationship between predictor variable and knowledge, attitude and behavior, the study implemented the methods of analysis consisting of three different techniques: univariate; bivariate; and multivariate analysis. The external predictor factors were discussed separately which was aimed at addressing the external factors influence on level responden's knowledge, attitude and behavior. Lastly, the research and

policy implications were presented in a separate section in order to address the third objective.

The results of univariate analysis showed that overall, DKI Jakarta had the highest knowledge of HIV/AIDS compared to Bali and Papua, but their sexual risk-taking behavior was still relatively high, indicated by the high percentage of the respondents who had not used condoms when they last had sexual intercourse. Misconceptions related to HIV/AIDS revealed a high percentage as well identified from the doubtful responses when asked a set of questions about how to reduce their chances of getting the AIDS virus.

The result of bivariate analysis suggested that all socio-economic and demographic predictor variables showed statistically significant relationships with all three forms of Knowledge, Attitude and Behavior related to HIV/AIDS. Overall, there were eleven significant predictor variables used in the bivariate analysis. The magnitude of the correlation of those variables and the dependent variables, however, varies for each predictor variable; several variables show a strong association while some others show a weak association. The education level, age at first sexual intercourse, media exposure, access to condoms, and access to information regarding HIV/AIDS were found to have a strong correlation with knowledge of HIV/AIDS. On the other hand, there were no variables identified in the analyses, which had the significant correlation with

Attitude, excepted religion in Papua. The bivariate analysis identified in Behavior presented a similar correlation as Knowledge. The results showed that education level, wealth index, media exposure, access to condoms, access to information regarding HIV/AIDS had an extremely high correlation with behavior. The age of respondents had a strong correlation in Bali and DKI Jakarta, while in Papua the correlation was not as strong as in Bali and DKI Jakarta. With regard, husband's education had correlation with respondent's knowledge in Papua and Bali, showed a weak but significant association in DKI Jakarta. The bivariate analysis results suggested that KAB showed a statistically significant relationship with demographic factors. With the exception of the age of respondents in Papua, and age at first sexual intercourse seemed to be related to two dependent variables, knowledge and behavior. Overall, ten variables identified a significant correlation with those three dependent variables, even though their correlation varied for each province.

In the multivariate logistic regression analysis, all statistically significant factors ($p < .05$) from the bivariate analyses, as well as other factors that were thought to be conceptually important in predicting consistent correlation of KAB, were initially included in analysis. There are six variables entered in the analysis logistic regression between predictor variables and knowledge. They were education, wealth index, age of respondents, age at first sexual intercourse, access to condoms, and access to information regarding HIV/AIDS. Four predictor variables were identified as having a significant effect on knowledge in Papua, namely: education; wealth index; access to condoms and access to information

regarding HIV/AIDS. The significant variables in Bali included: age of respondents; access to condoms; and access to information n regarding HIV/AIDS. Furthermore, DKI Jakarta's significant variables were: education; age at first sexual intercourse; access to condoms and access to information about HIV/AIDS.

The use of condoms during the last sexual intercourse in those three provinces was very low. Factors like lack of knowledge about the effectiveness of using condoms, the levels of comfort while using them, the unavailability of condom particularly in remote areas, the unplanned and spontaneous nature of the sexual intercourse, the powerlessness of female sex partners to negotiate the use of the condom itself, as well as cultural and religious factors, continue to prevent the greater use of condoms. Even though those respondents had knowledge about the effectiveness and merits of condoms as a barrier to HIV infection, this did not indicate that they would use them. Knowledge alone did not seem to have a significant correlation with safe sex behavior (Taylor et al. 1994 cited in Otto, 2007 p. 88).

From ten variables entered, five were identified as having significant values in behavior related to HIV/AIDS, even though they were distributed in different provinces. Wealth index had significant values in DKI Jakarta, while the age of the respondent represented high significant values in Bali and DKI Jakarta. Women's exposure to media had a significant correlation

only in DKI Jakarta. This was arguable due to the fact that DKI Jakarta was categorized as urban in which high technology was applied. It was different with Papua, which was categorized as a collection of remote areas as can be seen in the frequency distribution of urban and rural areas. Access to condoms was perfectly correlated in this logistic regression analysis in those three provinces.

To sum up, there are no variables influencing knowledge and behavior that can be applied in these three provinces. Those regions had their own variables which were correlated with knowledge and behavior, but excluded attitude through multivariate analysis. Two variables were identified as having a significant correlation with knowledge in the multivariate analysis, namely, access to condoms and access to information regarding HIV/AIDS, while access to condoms was the only variable which had a strong correlation with behavior in those three provinces.

The different sources of information and access of condom related to the different background characteristics of each province selected. The significant differences occurred in Papua and two other provinces, Bali and DKI Jakarta because from the analysis of the data, more than 80% of Papua was considered as rural, different from DKI Jakarta, which counted 100% as modernized urban. Bali was in the moderate category between urban and rural. These diverse background characteristics were an indication of the different sources of gaining information about HIV/AIDS in those three

provinces. These findings indicated that those sources of information were a very important channel for creating awareness about HIV/AIDS among women in Papua, Bali and DKI Jakarta. Their role must therefore be supported and boosted by the government and other stakeholders. On the other hand, as the DHS Indonesia did not have the provision for the questions differentiating whether the use of condom was to avoid risk of HIV/AIDS or to avoid the risk of pregnancy, our index on sexual behaviour does not truly reflect the actual intention and this is a weakness of the index. Hence, It is important that reasons for using condoms are incorporated in the questionnaire in future DHS.

4.1.2 External Factors Influencing Knowledge, attitude and behavior

The findings from the 2007 IDHS data utilizing univariate, bivariate and multivariate analyses indicate that HIV/AIDS knowledge alone does not determine sexual behavior; other factors work to make women who are knowledgeable about the risks of HIV infection behave contrary to their knowledge. Another possible explanation could be that several external factors influencing KAB are related to HIV/AIDS in those three provinces which have a high prevalence of HIV/AIDS, such as culture, tourism and migration. After analyzing several predictor factors from the 2007 IDHS and identifying that there was no correlation with Attitude, it can be concluded that strong correlations from those external factors could be the major influences on KAB in those three provinces.

4.2 Implication of the study

This current study has provided a relatively detailed analysis of the influence of socio-economic and demographic factors on KAB in the three selected Indonesian provinces based on the 2007 IDHS. However, due to restricted scope of the present study and limitation of some of the data provided in the IDHS, the external factors influencing KAB could not be discussed in depth.

The cross-tabulation analysis suggested that a relatively higher degree of misconception and myths related to condom use and ways to reduce HIV/AIDS by having safe sex, resulted in the highest prevalence presented in Papua, followed by Bali, especially among low and uneducated women, women with low or uneducated husbands, women who were less frequently exposed to media, women who had a low income, and younger women. Furthermore, the multivariate analysis revealed that the factors identified as contributing to the knowledge and behavior, excluding attitude, among women in those three provinces were access to condoms and to information about HIV/AIDS. Access to condoms had a strong correlation with behavior, while access to information about HIV/AIDS had a strong correlation with knowledge. Additionally, there was some difference in variables, which contributed to knowledge and behavior among women in those three provinces. This implied that providing enough right information about HIV/AIDS and condoms is essential to these women. The information should be presented in simple terms or through pictures, which enables women to understand easily. Furthermore, increased level of education may reduce their misconceptions and

myths about HIV/AIDS and condoms, and may increase their awareness of practicing safe sexual behavior.

Ideally, this study would have analyzed the data by the sex of the respondent. However, limited responses of the men's dataset did not allow a gender disaggregated analysis.. As a result, the analysis of factors influencing KAB was mainly based on the data available on ever-married women only, and excluded currently married men. Future research on the influence of socio-economic and demographic factors would greatly benefit from disaggregated data analysis. Furthermore, the incomplete responses of the couple dataset are advisable in order to obtain a balanced picture between men and women about the influence of socio-economic and demographic factors on KAB related to HIV/AIDS. In addition, the variables which could be included may be whether a respondent has ever paid for sex (in men data set, or had more than one wife or husband (both in men and women data set). Several of the variables in the data are also incomplete. This could be due to some of the cultural factors in Indonesia, for example, the questions relating to age at first sexual intercourse also recorded age at first marriage because in Indonesia, it is assumed that first intercourse will be only done in a married union, even though in some societies, people may have sex before getting married.

Overall, the findings of the study suggest that policies to increase awareness relating to HIV/AIDS should be a responsibility for all stakeholders in the struggle to control the spread of HIV/AIDS among women. Several of the recommendations may be very specific for the situation in each province, such as in Papua, Bali and

DKI Jakarta due to the influence of different variables on KAB related to HIV/AIDS that were found in the data. For example in Papua, any prevention effort must come to terms with an extraordinarily complex cultural and political situation. Factors such as limited access to information, access to condoms, biased service delivery, and simplified ideas about culture all have a significant correlation on how much Papuans hear and learn about HIV/AIDS and how to have safer sex. For the 'don't know' responses, there may also be indications that teenagers are receiving HIV/AIDS information from many sources, some of which could be false and contradictory. For HIV educators, the implications should be that women with 'don't know' responses are potentially easier to educate than those with wrong answers like 'a person cannot get HIV by having sex without condom'. Another intervention could be implemented in Bali, in which as a tourist destination, the existence of sex workers might not be ignored. As previously discussed, some of the CSWs and their clients are reluctant to use condoms for several reasons, and due to misconceptions, myths, spontaneous sex, unavailability and feeling uncomfortable using condoms. Migrant workers who have a close relationship with CSWs should also be targeted. In DKI Jakarta, which is considered as urban, the lifestyle of the community could be one of the factors contributing to the spread of HIV/AIDS. Of those factors, intervention should be comprehensive in nature and should include educational activities concerning HIV/AIDS transmission, and prevention, condom promotion, improved condom availability, and activities to strengthen the health sectors.

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Appendix 1: The Dependent and Independent Variables in Examining the influence of socio-economic and demographic factors KAB related to HIV/AIDS in Papua, Bali and DKI Jakarta

Variables	Operational definitions	Code number 2007 IDHS questionnaire
Dependent Variables		
Knowledge	Measured by creating an index to determine the level of women's knowledge about HIV/AIDS 1= poor if the ever married women aged 19-49 had scored at the level between 0-5 2= better if the ever married women aged 19-49 had scored at the level between 6-12	IDHS07-EMWQ, no.801,804, 806, 808, 809, 812B
Attitude	Measured by creating an index to determine the level of women's attitude about HIV/AIDS 1= poor if the ever married women aged 19-49 had scored at the level between 0-4 2= better if the ever married women aged 19-49 had scored at the level between 5-8	IDHS07-EMWQ no 814, 815, 816
Behavior	Measured by creating an index to determine the level of women's behavior about HIV/AIDS 1= poor if the ever married women aged 19-49 had scored at the level between 0-1 2= better if the ever married women aged 19-49 had scored at the level between 2-4	IDHS07-EMWQ no.516, 524
Independent Variables		
Education level	The highest level of education completed by the ever married women aged 15-19 1=primary or below 2=secondary or above	IDHS07-EMWQ, no.108
Respondent's working status	Working status of the ever married women aged 15-49 at the time of survey or 12 months before the survey 1= not working 2= working	IDHS07-EMWQ, no.710
Wealth index	The economic status of the ever married women aged 15-49 1= lower income 2=middle income 3=upper income	IDHS07-HH, QHWLTHI
Age of respondent	The age group of ever married women aged 15-49 1=15-29 2=30-39 3=40-49	IDHS07-EMWQ, no.106

Age at first sexual intercourse	The exact age at which the ever married women had sexual intercourse at first time 1= 10-18 2=19 or above	IDHS07-EMWQ, no.514
Media exposure	Accessibility and exposure of the ever married women aged 15-49 through media resources 1= Low exposure 2= High exposure	IDHS-EMWQ, no 114-116
Access to condoms	How accessibility of women aged 15-49 to get condoms 1=public sectors 2=private sectors 3=other resources (health post, family planning posts, friends/relative, and shop)	IDHS-EMWQ, no 525
Access to information of HIV/AIDS	Access to information of HIV/AIDS through media resources by the ever married women aged 15-49 1= electronic media 2=print media 3= others to represent sources of getting information from health professional, religious institution, school or teacher, community meeting, friend or relative, workplace and internet	IDHS07-EMWQ, no. 801A
Husband's education	The highest level of education completed by the ever married women aged 15-49 1=primary or below 2=secondary or above	IDHS07-EMWQ, no.704
Religion	The religious affiliation, preference, or background of the ever married women aged 15-49 1=Islam 2=other religion (Protestantism, Catholicism, Buddhism, Hinduism, and Confucianism)	IDHS07-HH, no.117
Place of respondents	Place of residence of ever married women aged 19-49 1=urban 2=rural	IDHS07-HH, no.5

IDHS07-HH : The questionnaire of 2007 Indonesia Demographic and Health Survey for households.

IDHS07-EMWQ : The questionnaire of 2007 Indonesia Demographic and Health Survey for ever-married women's aged 15-49 years.