

## SELF-EFFICACY AND HEALTH BEHAVIOR DEVELOPMENT OF ISAN AIDS PATIENTS RECEIVING ANTIRETROVIRAL THERAPY: A PROACTIVE STRATEGY FOR HEALTH PERSONNEL

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### *Abstract*

*Acquired Immunodeficiency Syndrome (AIDS) remains internationally the most serious problem in both social and medical realms. The use of antiretroviral therapy (ART) has enabled many people living with HIV/AIDS (PHA) to live longer and suffer fewer complications from the human immunodeficiency virus (HIV) infection. The potential negative consequences of poor adherence have highlighted the need for effective strategies that will optimize the adherence of PHA to their ART. The purpose of this study is to systematically review the existing scientific literature on the role and relationship between AIDS patients' self-efficacy and health behaviors as a vital indicator which will benefit AIDS patients receiving ART and teams of health personnel providing care for Thai AIDS patients in fulfilling the necessary health behaviors appropriately and continually through their own abilities. This study is based on Bandura's theory of self-efficacy, which will lead to a proactive strategy for these patients.*

**Key words:** self-efficacy, health behaviors, AIDS patient, proactive strategy

### **Introduction**

The HIV/AIDS epidemic is one of the most important challenges facing the global public health community. A comprehensive response to HIV/AIDS is needed to expand evidence-based prevention interventions and to ensure the

patient in need receives effective care, treatment and support (World Health Organization, 2004). It has been demonstrated that antiretroviral therapy can bring about a reduction of viral load and

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clinical benefit to individuals infected with HIV (Mitsuya & Erickson, 1998). It is widely recognized that adherence to ART is critical to long-term treatment success, and yet rates of adherence to antiretroviral medications are frequently sub-therapeutic (Renolds, et al, 2004, pp.140-150).

### Objective

The purpose of this study is to investigate the role and relationship between AIDS patients' self-efficacy and the health behaviors that assist health personnel to improve the ability of their patients to cope with HIV/AIDS. In turn, this would help patients to access beneficial sources of important data to improve their own efficacy, and they would have greater levels of confidence and a goal in life to follow appropriate behaviors that benefit their health, while avoiding those behaviors that affect it negatively.

### Methodology

Databases of scientific literature were screened through the internet for publications that involved HIV/AIDS epidemic, PHA in the northeast of Thailand, ART and its problems, as well as self-efficacy and its relationship with the health behaviors of PHA receiving ART. Hard copies of related scientific journals, textbook and relevant documents were also sought for the relevant topics, making use of a reference list of publications and citation searches. Documents were included if they were published since 1977. They were investigated and synthesized to explain the role of self-efficacy on appropriate behaviors of PHA receiving ART, with the expectation of improving adherence to the treatment. They

were excluded if they were not original research articles.

### Results

#### *HIV/ AIDS Epidemic in Thailand and in the Northeast*

The worldwide numbers of people living with (HIV/AIDS) climbed from approximately 30.6 to 37.8 million between the years of 1998 and 2003 (World Health Organization, 2004; Chokevivat, 1997). About 5.5 million people in developing and transitional countries were in need of antiretroviral therapy (ART). Only 440,000 had access to it by 30 June 2004, representing an increase of only 40,000 people in the first six months of 2004 (Chokevivat, 1997).

Symptomatic HIV infection and the number of AIDS patients have been increasing substantially in Thailand. The numbers of infected persons has risen from 137,817 to 260,996 over the years of 2000 to 2005. The majority of those infected were males between the ages of 20 to 39 years who were employed as manual laborers. The highest risk factor for transmission of infection was participating in unprotected sexual intercourse (Division of Epidemiology, Ministry of Public Health, 2000, pp.59-67; 2001, pp.62-71; 2002, pp.27-35; Department of Disease Control, Ministry of Public Health, 2003, pp.585-587; 2004, pp.93-96; 2005, pp.39-40).

In the Northeastern region of the country (known as "Isan" in Thai), the number of AIDS victims has been increasing at a particularly fast rate. Statistical estimates of infected persons had risen from 15,946 to 35,471 in the years from 1999 to 2003. The largest concentration of AIDS cases were in the province of Khon Kaen which had

increased from 2,497 to 4,093 people over a five years period (Division of Epidemiology, Ministry of Public Health, 2001, pp.62-71; 2002, pp.27-35; 1999, pp.61-66; Department of Disease control, Ministry of Public Health, 2003, pp.165-167).

Northeasterners commonly migrate to and from their hometowns in search of work opportunities in other areas of the country and abroad. Herein lies the difficulty of attaining an accurate view of the AIDS situation in the Northeast, since there may be quite a number of infected Isan natives temporarily living in, or in transit through, other Thai provinces. This point does not reduce the importance of preventative efforts in this region, but rather it draws greater attention to the need for awareness and preparation in terms of providing treatment regimens to potentially infected individuals returning to their hometowns (Ungchusak, Tonghong, Sangwonlog, Thepsittha, Rujuripat & Jansiriyakorn, 1995, pp.177-189).

Due to this continuous migratory pattern, it is expected that the prevalence of the disease in the 19 provinces that form the Isan area will worsen dramatically. One equally notable risk factor for infection lies in the unstable nature of the Thai economy, which presents a possibility that some migrating laborers may be laid off from their employment fields. Unemployment or illness associated with primary HIV infection increases the probability that more and more of these individuals will be forced to return to their hometowns. Awareness of the gravity of this situation and preparedness in encountering it are two necessities that the Northeastern Thai population cannot afford to forgo (The Committee Coordinating the

work of the Private Sector to Develop Isom Countryside, 1997). The emergence of this pattern is consistent with the findings of previous reports stating that there is a correlation existing between migratory patterns and the risk of HIV infection (Maticka-Tandale, et al., 1997, pp.199-213; Sukkamnurd, et al., 1998 (Salama & Dondero, 2001; Coffee, Garnett, & Lurie, 2004).

It was found that the socio-cultural natures of the Isan communities within the six provinces participating in the study: Khon Kaen, Kalasin, Mahasarakham, Sakonakorn, Chaiyapoom, and Nakhon Ratchasima, had a high tendency to have persons infected with the disease, which now exists in almost every village. In one particular community, five individuals were discovered to be infected with AIDS. Among the infected were three young male laborers who had previously ventured to other regions for employment, one woman who had contracted the virus from her husband, and one homosexual who had formerly worked in Pattaya, an international tourist destination of Thailand. All of these persons were infected through sexual intercourse, and all but one had migrated to work (and was presumably infected) outside of their hometown. Moreover, the general cultural acceptance of males having sexual relationships with someone other than their spouse was recognized as a factor that greatly increases the likelihood of infection. Equally influential is the fact that many Isan men refrain from using condoms during intercourse (Maticka-Tandale, et al., 1997, pp.199-213; Sukkamnurd, et al., 1998), because they find them to be embarrassing, complicated and unnatural (Sukkamnurd, et al., 1998).

*Problems of AIDS Patients Receiving ART in Thailand*

HIV's most notably damaging effect is that it reduces the immune functioning of an infected individual. HIV/AIDS also remains a condition for which there is no cure; however, a medication combining three various antiviral elements, Stavudine (d4T), Lamivudine (3Tc), and nevirapine, has been condensed into a single pill called GPOvir, an effective medicine that may suppress HIV virus replication and that is now available in Thailand. The average monthly cost of it is close to 1,200 baht (US\$34) (Thanprasertsuk, et al., 2003; Hirunseetikul, 2003). The widespread usage of GPOvir reduces the cost of ART from an estimated US\$300 to US\$29 per month (Hirunsuttikul, 2003). The problem of high cost of ART seems to be under control. However, the main concern with ART is the side effects, which often result in withdrawal from the treatment, contributing to resistance to the drug (Ministry of Public Health, 2002).

It was found that poor adherence reduces the effectiveness of treatment efforts and causes resistance to the drug's action (Boden, et al, 1999; Nieuwkerk, et al, 2001; Reif, Smith & Golin, 2003). The main factors for resistance to the drug's actions are believed to be the patients' failure to receive an adequate amount of medication for the following reasons: 1) Patients do not take the entire dose of the drug for several reasons, such as simply forgetting, the inconvenience of being away from home, or being too busy; (Renolds, et al, 2004, pp.140-150); Chokeyivat, 1997). 2) Their physicians do not have sufficient knowledge to prescribe the appropriate medicine to their patients. This is due to the fact that,

as the services provided to patients are continually expanding, the doctors responsible for offering treatments may fail to attain new and updated information concerning treatment options and procedures (Chokeyivat, 1997). Furthermore, significant differences in the compliance of Thai AIDS patients with their ART treatments have been noted between the Northeast and Central regions of the nation which was the lowest in the Northeast and the highest in the Central (Kongsin, Jiamton, Arsanam, Tantisak, & Thanprasertsuk, 2004). Moreover, almost all HIV/AIDS out-patients of the Bamrasnaradura Infectious Disease Institute of Thailand (97%) had inappropriate behavior more when compared to those receiving ART with special preparation or special procedure for administration (Muangchana, Prommoon & Somton, 2004). Differences in the ability to tolerate the harsh side effects of the medicine, and a lack of finance made medical provision difficult or impossible. These factors often resulted in patients not taking the entire dose of the medicine at the time assigned, which is the main cause of resistance to the drug's action and has very serious consequences for the patients and for their respective communities. When a patient becomes resistant to a drug it is no longer effective and it is difficult to find a new medicine for these patients, because there are new onsets of resistance to the action of other ART medicines. Furthermore, the problem of new drug-resistant viral strains could bring a severe health crisis to many communities in Thailand (Chokeyivat, 1997). PHA's needs are primarily related to high-level forms of care, treatment and financial assistance (Kompayak, Ausaporn, Chutima &

Aurachorn, 1994; Trakunkarn, 2002). The significant psychosocial needs of Thai AIDS patients are self-worth, knowledge of their rights, privacy and freedom, whereas their physical needs are mostly nutritionally based and control of opportunistic infections (Trakunkarn, 2002).

The PHAs in Thailand experience difficulty in attaining health services, and it was realized that the majority of the problems related to the structure of the health service system. The system was found to have several major flaws, including the discontinuation and insufficiency of services provided to patients, various limitations in providing care, a general lack in the standard of organizing the surroundings in the system of health services, and an inequality of patients' rights under the system. All these flaws interfered with the equality of treatments, particularly the treatments pertinent to antiretroviral therapy, as well as the consistency of receiving it. Factors that were found to be the primary causes of difficulty in getting help through health services and within society were the widespread discrimination against the patients by the medical staff and also the discrimination against the patients by their communities and society (Wattradul, 2002).

#### *Significance of ART Adherence*

In 2004 the Ministry of Public Health of Thailand allocated increased financial support to increase the number of patients with access to ART to approximately 50,000. In August of the same year, it was reported that approximately 47,100 patients had begun to receive ART, nearly fulfilling the Ministry's goal before the year's end (Bureau of AIDS,

TB and STIS, 2004). In order to achieve the goal of proper adherence to antiretroviral medication regimens, it is necessary to properly organize the procedures of such processes as administration and observation. These are procedures and tasks that involve multidisciplinary health personnel, because of the necessity of patients taking ART to have strictly appropriate health behaviors and continually for their entire lives. To further complicate the problem, drugs that attack non-resistant viral strains often spawn more virulent strains that may potentially resist future drugs (Chokevivat, 1997, Bureau of AIDS, TB and STIs, 2004). It was found that imperfect adherence to ART is likely to lead to treatment failure and development of transmissible drug resistant HIV (Boden, et al, 1999; Nieuwkerk, et al, 2001; Reif, Smith & Golin, 2003). It is essential that patients receiving ART adopt and lead lifestyles that are beneficial to their medication adherence. This conduct is fundamentally achieved through a positive alteration in one's health behaviors (e.g. changing one's attitudes concerning ART treatments, seeking the appropriate health care providers, establishing stable support systems, controlling one's own life and pursuing valued goals), as well as an avoidance of factors known to hamper the efficiency of ART (Enriquez, Lackey, Cornnor & Mekinsey, 2004, pp.438-460).

#### *Self-efficacy and Health Behavior Development: Bandura's Self-efficacy Theory*

##### *Lessons Learned from the Past*

Self-efficacy theory has increasingly gained acceptance as an explanatory model of health behavior and a guide for developing effective health promotion interventions (Bandura, 1977, pp.91-215;



1986, pp.359-373;1997). Self-efficacy is a confidence in one's capacity to overcome the difficulties inherent in achieving a specified level of behavioral attainment. The greatest benefits of this theory in clinical functioning are specific behaviors, such as overcoming eating disorders, depression, alcohol and drug abuse, and increasing the level of exercise (Bandura, 1997).

One highly effective means of developing and structuring self-efficacy proposes that self-efficacy motivates health promoting behavior directly through efficacy expectations to propel the individual into and through the behavior, to maintain and enhance their sense of well-being and to prevent the early onset of disabling health problems by engaging in a healthy lifestyle (Pender, Murdaugh & Parsons, 2002).

Psychosocial characteristics of AIDS patients and beliefs about ART may influence early experience with antiretroviral medication adherence and, therefore, could be important when designing programs to improve adherence to ART (Renolds, et al, 2004, pp.140-150). Constructing a means of guiding and measuring the health behaviors of AIDS patients receiving ART to illustrate success in changing health behaviors usually requires tenacious effort through self-efficacy. It has been demonstrated that effective short-term changes over a period of 6-24 months have occurred as a result of cognitive behavioral interventions (Pender, Murdaugh & Parsons, 2002). AIDS patients receiving ART must be compliant with at least 90-95% of their entire treatment regimen for a minimum of 24-48 weeks for the main outcomes (e.g. CD4 cell count, HIV RNA copies) to indicate a positive response to the

therapy (Ministry of Public Health, 2002; Duks, et al., 1999; Hunt, et al., 2003; Koblavi-Deme, et al., 2003; Van, et al., 2003). Therefore, this period of time will be sufficient to provide evidence as to whether or not the use these concepts are having a beneficial effect on the patients' health.

The relationships between AIDS patients' self-efficacy and health behaviors is a vital indicator that would prove beneficial to AIDS patients receiving ART and to teams of health personnel in caring for AIDS patients, by helping them to sustain the necessary health behaviors. The basis of this logic is largely due to the fact that AIDS patients suffer from a disease that is generally caused from engaging in inappropriate behaviors (Glanz, Rimer, & Lewis, 2002). Moreover, AIDS remains a chronic and incurable disease; therefore, it creates various realms of stigma which cause patients to suffer from numerous physical, emotional, social, and economic problems that often occur simultaneously, many of which could be eased through the strengthening of patients' self-efficacy, for their reliance on and practice of a model of self-efficacy promotion as a long term goal, such as that was formulated by Bandura (1997). The basis of Bandura's self-efficacy theory lies in the fact that knowing one's own efficacy is an important element that leads to alterations in personal behavior. Thus, the body of knowledge provides explicit guidelines for how to structure psychosocial programs to produce widespread changes in health habits and how to restructure medical services to enhance their effectiveness and social impact (Bandura, 1997). Moreover, the lessons learned from past experiences in regard to behaviorally transmitted diseases should not

be lost. The history of efforts to control diseases transmitted by behavior underscores the need for a multifaceted approach combining medical measures with psychosocial preventive programs. For example, with the development of a simple treatment for venereal disease, support for psychosocial control programs was curtailed, which resulted in a rise in infection rates (Culter & Arnold, 1988). It is essential for PHA receiving ART to strict to the therapy regimen and appropriate health behaviors. The patients with ART have to maintain strict and timely adherence to a predetermined routine of drug dosage for at least 90-95% of the regimen. Stemming from the fact that AIDS is a disease that has its basis in inappropriate sexual habits, it is essential that persons infected with HIV/AIDS employ the necessary precautions to avoid the dissemination of the HIV virus to other individuals. The opportunistic infections (OIs) that often accompany AIDS are highly capable of wreaking havoc on the health stability of many AIDS patients and are often the cause of their death. AIDS patients must exercise particular care in the hygienic practices they perform daily, and should also be cautiously aware of the environmental settings that surround them (Cranson & Caron, 1998). The use of physical activities to strength the body and immune system should be an indispensable component of AIDS patients' healthcare. Both aerobic and anaerobic exercise is related to enhanced muscular stamina and body composition in HIV-infected patients, when it is offered through a personalized training and diet program (Scerola, et al., 2003). HIV-infected patients receiving ART should be encouraged to engage in physical activity and

should be strongly advised to maintain a healthy diet which is rich in fruit and vegetables. Maintaining social and spiritual regulations is also essential for the quality of life of the patients (Volberding, 2003).

However, these abovementioned essential health behaviors of Thai northeastern PHA with ART could not be demonstrated. Most of these PHA had poor adherence to ART. The common reasons given were forgetting to take the drug, being inconvenient to take it and being too busy (Kongsin, Jiamton, Arsanam, Tantisak, & Thanprasertsuk, 2004). This health behavior as an outcome reflected the understanding and belief in self towards following the strict ART therapy. Since self-efficacy is the confidence, belief, or judgment of one's ability to organize and execute given types of performance about what one can do under different sets of conditions with whatever skills one possesses (Bandura, 1997), being able to assess and design appropriate measures to improve understanding and commitment of these patients, that is, their self-efficacy, may help to achieve the goal of appropriate health behavior of PHA with ART.

There has been very little evaluation of what types of approaches and care improve medication adherence, health services rapidly on a nationwide, equitable and sustained basis, and lead to favorable results (World Health Organization, 2004; Singh, et al., 1996, pp.261-269; Ningsanon, et al., 2004). Therefore, it is important for Thai authorities to set policy to advocate an attempt to promote AIDS patients' behaviors to care for themselves and to have a good quality of life (Ministry of Puplic Health, 2002; Bureau of AIDS, TB and STIS, 2004). ART adherence should be the main goal of the

multidisciplinary team that first administers ART to the PHA in order to plan the proactive strategies that give proper services or information to these patients instead of routine care. Such health care personnel should realize the benefit of improving the patients' level of self-efficacy and should use these techniques in providing care to AIDS patients receiving ART in order to improve medication adherence and also make the patients confident in adopting appropriate health behaviors continually through their own abilities. In addition, promoting the self-efficacy enhancement of health behavior is in accordance with the long-term viewpoint of the Ninth Thai National Social and Economic Development Plan (2002-2006), that considered humans as the center of national development (Office of the National Economic and Social Department Commission, 2001).

### Conclusion

The relationship between self-efficacy and the health behaviors of AIDS patients receiving ART is an important phenomenon which demonstrates the effectiveness of a short-term proactive strategy of self-efficacy promotion to improve the health behaviors of PHA. This review contributes to the knowledge of the relationship between self efficacy and health behaviors, which recommends the next step of developing an appropriate instrument to measure the specific self-efficacy and health behaviors, especially of PHA with ART in Northeastern Thailand. This measurement tool will be valuable for health planners or multidisciplinary teams who are designing health promotion or protection strategies for these patients. Finally, it is hoped that health teams develop a self-efficacy promotion program that will encourage appropriate health behaviors in regard to his condition and effectively deal with medication adherence and drug resistance of PHA.



**“Well begun is half done”**



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