

What Influences online STDs and HIV/AIDS Information Seeking among Young People? Learning a Lesson from American Studies

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ABSTRACT

Young people are found to be more sexually active and more likely to engage in sexually risky behavior than in the past. Soaring STDs and HIV/AIDS rates among young people have consequently raised their concerns about STDs and HIV/AIDS infection. Given the fact that seeking information on the Internet is interactive, anonymous and timely, young people who are Internet savvy and dependent may bypass traditional channels and turn to the Internet for STDs and HIV/AIDS information. This study, therefore, attempts to develop an integrated model for investigating factors influencing young people's STDs and HIV/AIDS information seeking on the Internet based on the findings of studies conducted in American. The integrated model addresses the roles that the social context, personal factors (e.g., demographics, direct experience of a disease/illness, salience, beliefs, attitude toward a behavior, perceived sufficiency of information, and personality traits), and information-seeking motives related to Internet characteristics and

online STDs and HIV/AIDS information may play in determining young people's online STDs and HIV/AIDS information seeking. Through the exploration of how factors influence health information seeking among young people in America, this study will help Taiwanese researchers understand online STDs and HIV/AIDS information among young people in Taiwan where online STDs and HIV/AIDS information seeking studies are still insufficient. It will also enhance Taiwanese education administrators', health educators', public health practitioners', and health communication researchers' understanding of STDs and HIV/AIDS information seeking on the Internet among young people, which sequentially reinforces their notions about how to design effective online STDs and HIV/AIDS intervention/education programs.

Keywords: STDs, HIV/AIDS, online information seeking

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Young people in America are at persistent risk for sexually transmitted diseases (STDs) and human immunodeficiency virus (HIV)/acquired immune deficiency syndrome (AIDS) infection. Through 2003, an estimated 38,490 young people in America received a diagnosis of AIDS (CDC, 2005). Statistics also shows that 48% of all STDs in America are among young people aged 15 to 24 (Elliott, 2004). Seeking STDs and HIV/AIDS information, therefore, becomes an important activity among young people (Escoffery, Miner, Adame, Butler, McCormick, & Mendell, 2005).

Among different channels, the Internet, which is interactive, anonymous, timely, and cost-effective, has become an imperative channel for disseminating and seeking STDs and HIV/AIDS information (Bull, McFarlane, & King, 2001; Keller, Labelle, Karimi, & Gupta, 2002; Roberto, Zimmerman, Abner, Carlyle, Cupp, Hansen, & Thomas, 2004). Studies have found that the Internet empowers its users to seek disease processes, clinical trials, medical treatments, alternative therapies, and prevention advice about STDs and HIV/AIDS; to express concerns about HIV/AIDS, to solicit social support from people coping with HIV; or to challenge existing AIDS discourse (Bull et al., 2001; Gillett, 2003; Kalichman, Weinhardt, Benotsch, DiFonzo, Luke, & Austin, 2002; Reeves, 2000, 2001).

Current studies about online STDs and HIV/AIDS information seeking conducted in America, however, mainly target people living with STDs or HIV/AIDS (Bull et al., 2001; Kalichman, Benotsch, Weinhardt, Austin, Luke, & Cherry, 2003; Kalichman, Benotsch, Weinhardt, Austin, & Luke, 2002; Reeves, 2000, 2001). Little attention has been given to understanding American young people's online STDs and HIV/AIDS information seeking, even though they are found to be a sexually active, at-risk group and tend to use the Internet for seeking health information (Escoffery et al., 2005). This study, therefore, seek to synthesize

perspectives from different models or theories to integrate a model for investigating factors affecting STDs and HIV/AIDS information seeking on the Internet. It aims to make a significant contribution toward the understanding of factors influencing STDs and HIV/AIDS information seeking on the Internet among young people.

Similarly, statistics show that the rates of STDs among Taiwanese young people in 2003 are almost two times those of four years ago (Hsae, 2003). Since reporting began, one thousand one hundred and fifty-two (1152) young people in Taiwan (aged between 15 and 24) have been diagnosed as HIV-positive (Wang, 2004). However, knowledge about online STDs and HIV/AIDS information seeking among Taiwanese young people is very limited. This American experience will also yield some different thoughts which will foster Taiwanese scholars' and public health practitioners' understanding of online STDs and HIV/AIDS information seeking while conducting a local study or a health campaign on young people.

Online STDs and HIV/AIDS Information Seeking

Information seeking is defined as the purposive acquisition of information from selected information carriers (Johnson, 1997). Based on this definition, online health information seeking is defined as action to purposefully obtain health-related messages from the Internet in order to help individuals "reduce uncertainty regarding health issues" and "construct a social and personal (cognitive) sense of health" (Tardy & Hale, 1998, p. 338).

Traditionally, people access health information by interpersonal channels or via traditional media. With the prevalence of health information on the Internet (Suarez-Amazor, Kendall, & Dorgan, 2001; Elliott & Elliott, 2000; Fox & Fallows, 2003; Fox & Rainie, 2002), some

people, particularly younger people with greater computer skills, may bypass traditional sources (e.g., physicians, family members, friends, and mass media) to seek health information online (Case, Johnson, Andrews, Allard, & Kelly, 2004). From educating people about obesity (Tate, Wing, & Winett, 2001), alcohol abuse (Matano, Futa, Wanat, Mussman, & Leung, 2000), drug use (Di Noia, Schwinn, Dastur, & Schinke, 2003), and cigarette use (Burgoon, Alvaro, Broneck, Miller, Grandpre, Hall, & Frank, 2002; Buller, Woodall, Hall, Borland, Ax, Brown et al., 2001; Etter & Perneger, 2001), to teaching parents about children's immunization (Fawcett, Schultz, Carson, Renault, & Francisco, 2003), the Internet enables users to both seek and exchange health information (Wikgren, 2003) and control the presentation and response to the information or service in the same context in which it is delivered (Street & Rimal, 1997).

The Internet has also served as an important tool for disseminating /acquiring information on STDs (Bull et al., 2001; Keller et al., 2002; Smith Gertz, Alvarez, & Lurie, 2000; Roberto et al., 2004) or HIV/AIDS related information (Bull et al., 2001; Gillett, 2003; Kalichman et al., 2002; Keller et al., 2002; Reeves, 2000, 2001; Roberto et al., 2004; Smith et al., 2000). Bull et al. (2001) completed an online survey and found that 61% of respondents indicated that they would visit a website for STDs or HIV/AIDS prevention information. In addition, Borzekowski and Rickert (2001) surveyed adolescents in America and found that adolescents attempt to explore STDs information on the Internet. The Pew Internet and American Life Project conducted by Fox and Rannie (2002) noted that 33% of health seekers have looked for sensitive health information on the Internet that is difficult to talk about. One year later, Fox and Fallow (2003) found that 10% of American Internet users have searched for sexual health information on the Internet. In effect, the Internet has become an explicitly alternative source that people can seek STDs and HIV/AIDS information.

The Internet's unique characteristics (e.g., anonymity, personalization, and interactivity) have made it an ideal channel for seeking and/or communicating sensitive information. Thus, health educators adopt it in order to convey sexual health education to targeted audiences (Keller et al., 2002). People who feel uncomfortable discussing sexually related information with their parents or others and prefer to privately explore sexually-related issues have increasingly turned to the Internet with sexually-related questions (Smith et al., 2000). Given that the Internet alters the ways people seek STDs or HIV/AIDS information (Keller et al., 2002; Smith et al., 2000; Kalichman et al., 2003; Kalichman et al., 2002), online STDs and HIV/AIDS information seeking has become a burgeoning area for illuminating the health information acquisition process.

Online STDs and HIV/AIDS Information Seeking and the CMIS

There are a number of models or theories which have been formulated and widely adopted to study information seeking in the field of information science, education, communication, computer science (Marchionini, 1995), medicine, genetic counseling, business, economics, and religious studies (Afifi & Weiner, 2004). These include the cognitive model of information retrieval (Ingwersen, 1992), the stratified interaction model (Saracevic, 1996), the multidimensional model (Wang, Hawk, & Tenopir, 2000), the model of social information seeking (Ramirez, Walther, Burgoon, & Sunnafrank, 2004), problematic integration (PI) theory (Babrow, 2001), and uncertainty management (UM) theory (Brasher, 2001). However, few information seeking models/theories have been specifically developed to explore factors influencing online health information seeking.

The Comprehensive Model of Information Seeking (CMIS),

developed by Johnson and Meischke (1993), is a result of a synthesis of uses and gratifications theory, the Health Belief Model (HBM), and the model of media exposure and appraisal (Johnson, 1997; Napoli, 2001). It has been used as a framework to study information seeking among women with breast cancer (Johnson & Meischke, 1993) and information seeking in organizational contexts (Johnson, Donohew, Atkin, & Johnson, 1995). Recently, Johnson and his colleagues (2001) also used the CMIS to explore cancer genetics information on the Internet and found that the CMIS, stressing health-related motivations that impinge on an individual’s use of a particular information carrier, is effective as a model to predict people’s health information seeking and can be applied in the design of health interventions (Johnson & Meischke, 1993). Given that cancer, STDs and HIV/AIDS are all “unwelcome guests” in people’s lives and stigmatized by the public, the CMIS may also be appropriate as a framework to guide this study in exploring online STDs and HIV/AIDS information seeking.

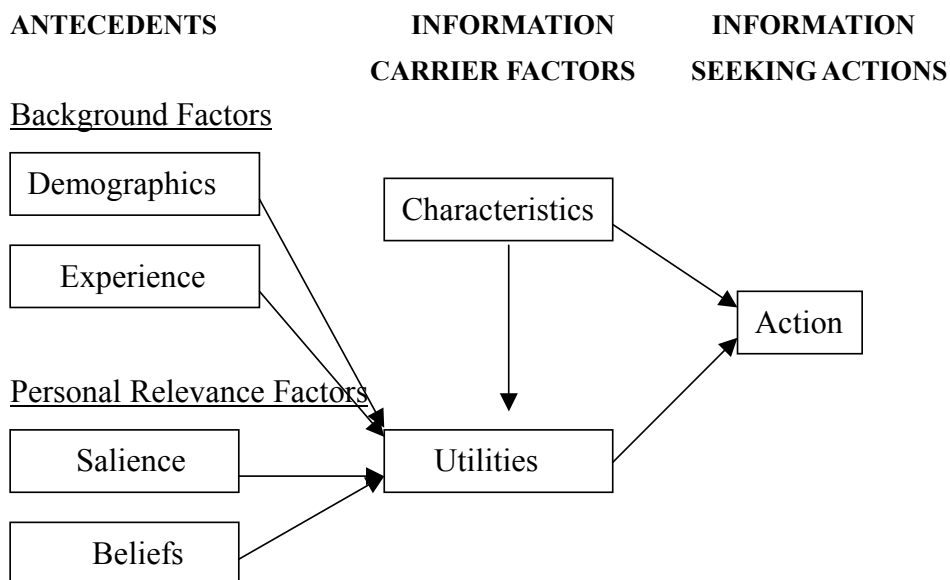


Figure 1: Comprehensive Model of Information Seeking (CMIS)
 (Johnson, 1997, p.34)

The CMIS (see **Figure 1**) contains (1) antecedents such as demographics, experience (an individual's degree of personal experience with disease), salience (the personal significance of disease-related information to the individual), and beliefs (an individual's belief in the efficacy of various medical procedure associated with disease); (2) information carrier factors such as characteristics of information carriers (an individual's perceptions about carriers' characteristics), and utilities (an individual's utilization of the all interpersonal network and mediated communication channels that a person is exposed to); and (3) information seeking actions (Johnson, 1997; Johnson et al., 2001).

From the perspective of uses and gratifications theory, the CMIS assumes that information seekers who are active and goal-oriented may choose to participate and select media or messages from a variety of communication alternatives in response to their expectations and desires (Blumler & Katz, 1974; Palmgreen, Wenner, & Rosengreen, 1985; Rubin, 2002).

The CMIS also draws heavily on the HBM, which has been adopted as a framework for exploring AIDS-preventive behaviors (Steers, Elliott, Nemiro, Ditman, & Oskamp, 1996). From the perspective of the Health Belief Model, Janz, Champion and Strecher (2002) pointed out:

*People will take action to prevent, to screen for, or to control
ill-health conditions
if they regard themselves as susceptible to the condition, if they
believe it would
have potentially serious consequences, if they believe that a
course of action
available to them would be beneficial in reducing either their
susceptibility to or
the severity of the condition, and if they believe that the
anticipated barriers to*

(or costs of) taking the action are outweighed by its benefits. (pp. 47-48)

The CMIS, therefore, incorporates these features which are likely to influence

the process of information seeking (Napoli, 2001). It indicates that elements such as direct experience with a disease, salience (perceived susceptibility to a disease), and beliefs (e.g., self-efficacy) may determine the perception of the use of certain channels for seeking health information (Johnson, 1997; Napoli, 2001).

Additionally, the model of media exposure and appraisal indicates that message content attributes (e.g., perceived credibility and information presentation styles) and an individual's direct judgment of the usefulness of a particular medium determine the linkage between an individual's media assessment and media selection (Johnson, 1983; Johnson, 1984). The model of media exposure and appraisal is similar to the expectancy-value approach to uses and gratifications, emphasizing that behavioral intentions, attitudes, and behavior are viewed as a function of expectancies and evaluation (Palmgreen et al., 1985). It helps researchers "develop direct linkages between individual's assessments of specific characteristics of a medium, and their summary appraisal of and exposure to it" (Johnson, 1983, p. 151).

By and large, the CMIS focuses on the antecedents that explain why people become information seekers, the information carriers that shape the intention to seek information, and the information seeking actions that determine the development of an individual's information field (the interpersonal network and mediated communication channels that an individual is exposed to) (Johnson et al., 2001). It has attempted to answer "why" questions, focusing on underlying factors affecting information seeking (Johnson, 1997). However, more components need to be added as if researchers attempt to broaden the heuristic application of

the CMIS in understanding health information seeking. First, social context needs to be included in the CMIS, as information seeking is socially and psychologically constrained. Recently, Johnson (2003) has included social context in the CMIS as an important component for understanding information seeking, indicating that the role of social context has been given more attention. As talking about sex is a cultural taboo and STDs and HIV/AIDS are stigmatized, social norms, in terms of social context, are an important factor in this study. Thus, the impact of subjective social norms about STDs and HIV/AIDS needs to be specifically considered when attempting to explore factors affecting STDs and HIV/AIDS information seeking. Second, in terms of online information seeking, prior studies have found that perceived sufficiency of information (Griffin, Neuwirth, Dunwoody, & Giese, 2004), attitude toward a behavior (Ajzen & Fishbein, 1980; Fishbein, 1967; Fishbein & Ajzen, 1975; Montaño & Kasprzky, 2002), Internet self-efficacy (Marchionini, 1995), Internet dependency (Ball-Rokeach, 1998; Rubin & Windahl, 1986; Ruggiero, 2000), and information-seeking motives related to the characteristics of information carriers and content (Palmgreen & Rayburn, 1985a, 1985b) cannot be ignored in exploring factors influencing online information seeking. Third, the CMIS cannot help but answer the following question: “Is online information seeking in coordinated with other sources (e.g., interpersonal channels and traditional media)?” Adding the impact of the use of other sources on online STDs and HIV/AIDS information seeking will integrate more of the CMIS’s information field idea.

The proposed study, therefore, is based on an integrated model (see **Figure 2**) derived from the basic frameworks of the CMIS, uses and gratification, media dependency theory, the TRA, and the HBM. This integrated model focuses on how interpersonal channels as well as traditional media usage, the social context (e.g., cultural taboo of talking about sex), personal characteristics (e.g., demographics, direct experience of a disease/illness, salience, belief, and personality), and

information-seeking motives related to both Internet characteristics and features of online STDs and HIV/AIDS information promote or impede online STDs and HIV/AIDS information-seeking intentions among young people.

Traditional Channels Usage

- (1) Interpersonal Channels
- (2) Traditional Mass Media

Social Context

- (1) Subjective Social Norms

Personal Factors

- (1) Demographics
- (2) Experience with STDS and HIV/AIDS
- (3) Perceived Susceptibility to STDs and HIV/AIDS
- (4) Attitude toward Online STDs and HIV/AIDS Information Seeking
- (5) Perceived Sufficiency of STDs and HIV/AIDS Information
- (6) Self-efficacy
 - (I) Self-Efficacy to Control STDs and HIV/AIDS Infection
 - (II) Internet Self-Efficacy
- (7) Internet Dependency
- (8) Personality Traits (SS/IDM)

Information Carrier and Content Motives

- (1) Information-Seeking Motives Related to Internet Characteristics
- (2) Information-Seeking Motives Related to Online STDs and HIV/AIDS Information

Seeking Information about STDs and HIV/AIDS on the Internet

Figure 2: An integrated model for understanding online STDs and HIV/AIDS information seeking

Factors Affecting Online STDs and HIV/AIDS Information Seeking

Based on the CMIS framework and suggestions from other theories/models and empirical studies, the following discussion aims to illustrate factors influencing online STDs and HIV/AIDS information seeking in order to develop an integrated model for understanding this behavior among American young people.

The Impact of Traditional Channel Usage on Online STDs and HIV/AIDS Information Seeking

People gather health information through a complex network of sources (e.g., interpersonal channels, mass media, and the Internet) (Beresford & Sloper, 2003; Gray, Klein, Noyce, Sesselberg, & Cantrill, 2005). Interpersonal channels reinforce information seekers' notions about what they get from mass media (Salmon, 1992). Compared to interpersonal channels, mass media are more likely to quickly reach large audiences (Schramm, 1973), to become predominant sources of health news (Brodie, Kjellson, Hoff, & Parker, 1999), to inform people of new health policies affecting a community (Rimal & Adkins, 2003), and to raise consciousness of various issues through agenda-setting and media framing (McCombs & Ghanem, 2003). Mass media, however, are less likely to offer detailed instruction about health than interpersonal channels (Atkin, 2002).

Compared to traditional channels, the Internet has been regarded as a new tool for accessing tailored messages and interacting with others anonymously and timelessly (Kreuter, Farrell, Olevitch, & Brennan, 2000). Yet, such disadvantages of online information as inaccuracy (Brown & Walsh-Childers, 2002; Cline & Haynes, 2001; McClung, Murraray, & Heitlinger, 1998) and incredibility (Notman, Henry, Maynard, & Glandon, 2002) have become barriers, thus discouraging individuals to seek health information on the Internet.

Because different channels have both potential advantages and disadvantages for providing information, information seekers select media or messages from a variety of communication channels to meet their expectations and desires (Blumler & Katz, 1974; Palmgreen et al., 1985; Rubin, 2002). Stipp (1998) has found that people use new and traditional channels simultaneously for seeking information or entertainment. Conversely, some studies (Dimmick, Chen, & Li, 2004; Henke & Donohue, 1986; Henke & Donohue, 1989; Krugman & Rust, 1987) have found that people's usage of new information sources has displacement effects on their traditional media usage habits. Based on these findings, it is important to ascertain the relationship (supplement or displacement) between traditional channel usage and online STDs and HIV/AIDS information seeking among young people.

Social Context: Subjective Social Norms of Talking about STD and HIV/AIDS

All communication must occur within a context (Johnson, 1997). Traditionally, health behavior models (e.g., Health Belief Model) fail to account for the impact of the social context on people's health behavior (Ball-Rokeach, 1998; Dutta-Bergman, 2004; Pierce, Chadiha, Vargas, & Mosley, 2003; Vanlandingham, Suprasert, Grandjean, & Sittitrai, 1995). Some like-minded researchers (Baranowski, Perry, & Parcel, 2002; Dutta-Bergman, 2004; Kreuter & McClure, 2004; Krumeich, Weijts, Reddy, & Meijer-Weitz, 2001; Inhorn & Whittle, 2001; Inhorn, 1995; Mayberry, Mili, & Ofili, 2002; Ruggiero, 2000; Sun, Chang, & Yu, 2001; Thomas & Fine, 2004; Weiss, 2001) have suggested that more perspectives about social contexts (e.g., culture) must be taken into consideration in understanding people's health behaviors. Recently, the concepts of the context and situation are receiving increased attention as requisites to understanding information seeking (Rieh, 2004). Johnson (2003) argues that individual action and choices are context-driven. In

essence, the context in which people are embedded determines their intentions to seek information and actual exposure (Johnson, 1997).

Subjective social norms are such a salient social context factor that impacts individuals' online STDs and HIV/AIDS information seeking. The Theory of Reasoned Action (Fishbein, 1990; Montaño & Kasprzky, 2002) posits that subjective social norms include two concepts: "normative belief" and "motivation to comply". Therefore, subjective social norms are defined as individuals' "belief about whether most people approve or disapprove of the behavior" and their "motivation to do what each referent thinks" (Montaño & Kasprzky, 2002, p. 69). Thus, individuals who hold negative subjective social norms of talking about STDs and HIV/AIDS may believe that discussing these subjects is not acceptable in the context which they are embedded. Conversely, individuals with neutral subjective norms may have less motivation to comply with them although they believe certain people surrounding them think they should not talking about STDs and HIV/AIDS.

Personal Factors (Antecedent Factors)

Demographics

In addition to context-related factors, Napoli (2001) suggested that information seekers' characteristics, such as demographic variables, would lead to choices of particular information channels. Research evidence supports Napoli's assumption. Women were found to be more likely than men to search for health-related information on the Internet (Fox & Rainie, 2002). Also, education level is related to online health information seeking. Kalichman et al. (2002) have surveyed people infected with HIV/AIDS and found that those with higher education were more likely to use the Internet for health information. Recently, Cotton and Gupta (2004) have explored the key factors discriminating between online and offline health information seekers. They reported that demographic variables such as age, income, and education are related to

online health information seeking. Individuals, who are older, have lower socio-economic status, and are less educated, are less likely to use online health information.

Experience with STDs and HIV/AIDS

Disease experience can be a personal incidence of a disease or it can involve a disease experienced through an extended network of family and friends (Johnson & Meischke, 1993; Johnson et al., 2001). Experience with a disease has been found to be associated with information seeking behavior (Johnson, 1997).

The Internet, by providing open access to STDs and HIV/AIDS information, can inform and empower people living with HIV/AIDS (Kalichman et al., 2002; Reeves, 2000, 2001). Reeves (2000, 2001) have found that HIV-positive individuals treated the Internet as a valuable and primary channel for obtaining STDs and HIV/AIDS-related information and social support in coping with their illness. Interviewees indicated that through online information seeking they could seek general, specific, and up-to-date information related to STDs and HIV/AIDS, make social connections with others, and raise people's concerns of STDs and HIV.

Similarly, Kalichman et al. (2002) surveyed people in infectious disease clinics and community-based AIDS services about their online information seeking. They have found that 59% of respondents reported that they had used the Internet to access HIV/AIDS-related information. Under such circumstances, whether young people having experience with STDs and HIV/AIDS intend to seek STDs and HIV/AIDS information on the Internet becomes an interesting question.

Salience (Perceived Susceptibility to STDs and HIV/AIDS)

Salience is associated with the personal significance of health information to the individual (Johnson et al., 2001). Personal perceived susceptibility of risk to health or relevancy of a disease increases an

individual's anxiety (Lewis & Malow, 1997) and motivates or impedes his/her health-related preventive behaviors and information seeking (Johnson et al., 2001; Johnson & Meischke, 1993).

Lewis and Malow (1997) have found that heterosexual college students engaging in risky sexual behavior perceived greater susceptibility to STDs and HIV/AIDS and experienced more anxiety about contracting them. Under the threats of STDs and HIV/AIDS, they need more information to reduce their uncertainty about being infected with HIV/AIDS. Bull et al. (2001) have completed an online survey of sexual risk behavior in 2000. They reported that 61% of respondents indicated that they would visit a website for STDs and HIV/AIDS prevention information. Also, the study suggested that men having sex with men (MSM) were more likely to participate in online STDs and HIV/AIDS chat rooms, to open an e-mail message about STDs and HIV/AIDS prevention, and to surf STDs and HIV/AIDS-related websites. As Lewis and Malow (1997) and Bull et al. (2001) noted, only when individuals' perceive greater susceptibility to be infected with STDs and HIV/AIDS will they become more concerned with the information about STDs and HIV/AIDS.

Attitude toward Online STDs and HIV/AIDS Information Seeking

Attitude is an individual's relatively enduring affective orientation for a process (Oliver, 1981). Thus, behavioral science researchers indicate that attitude toward a behavior include (1) perceived beliefs that behavioral performance is associated with certain attributes or outcomes; and (2) perceived values attached to a behavioral outcomes or attribute (Montaño & Kasprzky, 2002).

Attitude is one of the direct determinants of an individual's behavioral intentions (Fishbein, 1967; Fishbein & Ajzen, 1975). A person's overall evaluation of online STDs and HIV/AIDS information seeking, beliefs about the relationship between online STDs and HIV

information seeking and information seeking outcomes, and perceived values attached to online STDs information seeking outcomes or attributes have an impact on their performance of online STDs and HIV/AIDS information seeking. Since little knowledge about the impact of attitude toward STDs and HIV/AIDS on online STDs and HIV/AIDS information seeking has been documented, it is imperative to examine the role that attitude toward STDs and HIV/AIDS information seeking plays in determining online STDs and HIV/AIDS information seeking among young people.

Perceived Sufficiency of STDs and HIV/AIDS Information

Information sufficiency is an individual's assessment of the amount of information he/she needs to cope with a risk (Griffin et al., 2004). Recent studies (Bull et al., 2002; Griffin et al., 2004) have indicated that an individual's perception of information sufficiency is predictive of their information seeking behaviors. However, the relationships between perceived information sufficiency and information seeking can be positive or negative. For example, Bull et al. (2002) have found that some people had no intention to seek STDs and HIV/AIDS information on the Internet because they felt that they already knew all the risks about them. Conversely, Feltwell and Rees (2004) have found that some people also failed to seek health information even when they had insufficient information about a disease. They feared the disease-related information because they thought the information they sought would cause them to worry. Based on this research, investigating the impact of perceived sufficiency of STDs and HIV/AIDS information on online STDs and HIV/AIDS information seeking among young people will be imperative.

Beliefs (Self-Efficacy)

According to social cognitive theory, self-efficacy is the confidence that individuals feel about their ability to overcome barriers to perform a behavior (Bandura, 1986, 1997, 2001). Although self-efficacy can vary

across different activities and circumstances (Bandura, 1986), those with higher self-efficacy, in contrast to those with lower self-efficacy, believe that they can finish a difficult task and engage in challenges (Torkzadeh & van Dyke, 2001). The CMIS posits that self-efficacy will increase individuals' information seeking (Johnson, 1997). In terms of online STDs and HIV/AIDS information seeking, we must consider two types of self-efficacy: disease control self-efficacy and Internet self-efficacy.

(1) Self-Efficacy to Control STDs and HIV/AIDS Infection

Stephenson and Witte (2001) indicated that researchers need to examine the impact of “self-efficacy” and “response efficacy” on individuals' acceptance of messages and disease control. People with low self-efficacy to control a disease have a feeling of powerlessness and believe that what happens in some sense has to happen (Solomon, 2003). It lets people feel that they can not do anything to change the outcomes of diseases (Green, Lewis, Wang, Person, & Rivers, 2004) Conversely, if people have high self-efficacy concerning early detection and disease control, they will be more motivated to take information seeking action (Johnson, 1997). In addition, individuals also evaluate their response efficacy to avert diseases. Johnson (1997) concluded that beliefs concerning the ability to control a disease motivate individuals to seek or not seek health information.

(2) Internet Self-Efficacy

Given that online STDs and HIV/AIDS information seeking is related to the ability to use the Internet effectively, Internet self-efficacy needs to be addressed. To be a successful online information seeker, an individual needs to have Internet expertise to command, read, and use the physical interface of a search system (Marchionini, 1995).

Although the concept of self-efficacy has broad theoretical and practical implications for information technology research (Torkzadeh &

van Dyke, 2001), few studies have incorporated self-efficacy concerning exposure and processing information from communication media. These studies have indicated that media self-efficacy is correlated with exposure to media (Hofstetter, Zuniga and Dozier, 2001; LaRose & Eastin, 2004). In terms of online health information seeking, recent studies have found that those with online savvy may possess better information searching strategies (Tsai & Tsai, 2003) and be more accustomed to seeking health information and answering a health question on the Internet (Fox & Rainie, 2002; Horrigan & Rainie, 2002). In other words, greater Internet self-efficacy enables individuals to utilize the Internet fully and facilitate their information seeking skills that can be applied in the online health information environment.

Internet Dependency

The perspective of “dependency” (also called “attachment” and “affinity”) relates to society, media, and audience (Ball-Rokeach & Defleur, 1976; Ball-Rokeach, 1985, 1998; Rubin & Windahl, 1986). It has been defined as “a relationship in which the satisfaction of needs or the attainment of goals by one party is contingent upon the resources of another party” (Ball-Rokeach & DeFleur, 1976, p.6).

The uses and gratifications theory treats the audience as active media users. However, it mainly looks at the intra-individual process of the audience’s uses and gratifications of media (Rubin, 2002), but overlooks the impact of interaction among social structure, media system, and audience on media dependency (Ball-Rokeach, 1998; Ruggiero, 2000; Sun et al., 2001). The uses and gratifications researchers find that the concept of “dependency” can add fresh ideas to the uses and gratifications approach regarding “the origin and structure of audience needs and motives, as well as a framework for discussing the role of functional alternatives and the consequences of media use” (Rubin & Windahl, 1986, p. 186).

Individuals seek channels or messages to meet their needs, motives, and desires under particular structures and media systems. The more salient the information needs, the stronger is the motivation to seek mediated information to meet these needs, the stronger is the dependency on the medium (Rubin & Windahl, 1986). A prior study found that the more people depend on Internet, the more likelihood they seek information resources on the Internet to understand the world surrounding them (Patwardhan & Yang, 2003). Case et al. (2004) have also found that the length of time an individual spends on the Internet is positively associated with higher ranking of the Internet as an information source. These findings will help researchers study the relationship between Internet dependency and online STDs and HIV/AIDS information seeking.

Personality Traits: Sensation Seeking and Impulsivity

Napoli (2001) and Amichai-Hamburger (2002) have suggested that personality theories can expand the potential to understand differences between Internet users and non-users. Risky personalities such as sensation seeking (Donohew, Zimmerman, Cupp, Novak, Colon, & Abell, 2000; Kalichman & Cain; 2004) and impulsivity (Donohew et al., 2000) are found to put individuals at greater risk of STDs or HIV/AIDS. They are important variables in exploring online STDs and HIV/AIDS information seeking.

Sensation seeking is a personality trait defined by “the seeking of varied, novel, complex, and intense sensations and experiences, and the willingness to take physical, social, legal, and financial risks for the sake of such experience” (Zuckerman, 1994, p. 27). Sensation seeking, a biologically-based trait (Zuckerman, 1988), has been widely-researched to describe individuals’ novelty and risk seeking. Empirically, sensation seekers are found to be more likely to seek stimuli that are intense, novel, and arousing and to seek alternative sources of information (Donohew,

Palmgreen, Lorch, Zimmerman, & Harrington, 2002; Donohew et al., 2000; D'Silva, Harrington, Palmgreen, Donohew, & Lorch, 2001; Kalichman & Cain, 2004; Palmgreen, Donohew, Lorch, Hoyle, & Stephenson, 2001; Zuckerman, 1994; Slater, 2003; Stephenson & Palmgreen, 2001).

Impulsivity has been also recognized as a personality trait to predict risky behaviors. Impulsivity typically refers to “behavior that incorporates a component of rashness, lack of foresight or planning or as a behavior that occurs without reflection or careful deliberation” (Dawe & Loxton, 2004, p. 343). There are at least two independent factors labeled as “reward sensitivity” and “rash spontaneous impulsivity” involved in impulsivity (Dawe & Loxton, 2004, p. 349). Studies have found that impulsivity is related to alcohol consumption (Granö, Virtanen, Vahtera, Elovainio, & Kivimäki, 2004), substance use (Butler & Montgomery, 2004; Dawe & Loxton, 2004), smoking (Granö et al., 2004; Skinner, Aubin, & Berlin, 2004) and risky sexual behavior (Dévieux, Malow, Sten, Jennings, Lucenko, Averhart, & Kalichman, 2002; Lejuez, Simmons, Aclin, Daughters, & Dvir, 2004).

Several personality researchers have viewed sensation seeking and impulsivity as related personality traits (Eysenck & Eysenck, 1977; Zuckerman, Kuhlman, Joireman, Teta, & Kraft, 1993; Zuckerman, 1994). For instance, Zuckerman et al. (1993) combined sensation seeking and impulsivity into a single dimension of a personality scale. Recent studies have noted that sensation seeking and impulsivity are complementary components of the decision-making process (Donohew et al., 2000). Young people who are both high sensation seekers and impulsive decision makers (HSS/IDMs) are more likely to initiate sex at an early age, have multiple sexual partners, and engage in unprotected sex in order to increase their sensation of the experience (Donohew et al., 2002; Donohew et al., 2000; Dudley, Rostosky, Korfhage, & Zimmerman, 2004;

Hoyle, Fejfar, & Miller, 2000; Zimmerman, Donohew, Sionean, Cupp, Feist-Price, & Helm, 2004). The combination of sensation seeking and impulsivity may place young people at higher likelihood to be infected with STDs and HIV/AIDS (Donohew et al., 2000). Furthermore, HSS/IDMs may need more STDs and HIV/AIDS information given that individuals would seek information to reduce their uncertainty and anxiety (Case, 2002). Thus, sensation seeking and impulsive decision making can be used as predictors to understand young people's online STDs and HIV/AIDS information seeking.

Satisfaction with Internet Characteristics and Online STDs and HIV/AIDS Information

Given that young people are increasingly engaged in health information seeking via the Internet (Cline & Haynes, 2001) and their expected Internet outcomes (e.g., status, activity, self-reactive, social, novel sensory, and monetary incentives) predict Internet usage (LaRose & Eastin, 2004), the following section aims to discuss the characteristics of the Internet and the nature of online health information and to argue how satisfaction with Internet characteristics and online STDs and HIV/AIDS information shapes young people's online information seeking.

Some of the Internet characteristics are interactivity (Cline & Haynes, 2001; Lieberman, 2001; Wathen & Burkell, 2002), anonymity (Skinner, Biscope, Poland, & Goldberg, 2003), accessibility (Gray et al., 2005; Reeve, 2001), cost-effectiveness (Brown & Keller, 2000; White & Dorman, 2001; Roberto et al., 2004), and timeliness (Napoli, 2001; Reeves, 2001). The potential advantages of the Internet presented above have made it appealing as the most-often-used and efficient channel for young people to access a wide range of health-related information (Napoli, 2001; Skinner et al., 2003). Nonetheless, the applications of the Internet to health information seeking also generate some issues pertaining to inaccessibility (Bull et al., 2001; Hargittai, 2002; Kalichman

et al., 2002; Skinner, Biscope, & Poland, 2003), navigational difficulties (e.g., searching difficulties, lack of user-friendliness, and lack of performance) (Chi-Lum, 1999; Pereira & Bruera, 1998; Pennbridge, Moya, & Rodrigues, 1999), and privacy/confidentiality (Baur, Deering, & Hsu, 2001). Similarly, some of the nature of online health information includes readability (Berland, Elliot, Morales, Algazy, Kravitz, Broder et al., 2001; D'Alessandro, Kingsley, & Johnson-West, 2001), accuracy (Huber & Cruz, 2000), credibility (Notman et al., 2002), saliency, usefulness, personalization (Gray et al., 2005), and multi-presentation modes of messages (Pettigrew, Durance, & Unruh, 2002). These features have been found to impact individuals' intention to seek STDs and HIV/AIDS information on the Internet (Gray, et al., 2005; Huber & Cruz, 2000).

The CMIS indicates that message content attributes, individuals' perception of the manner in which information is presented, and their direct judgment of the usefulness of a particular medium and content determine their media consumption (Johnson, 1983; Johnson, 1984). This is similar to the expectancy-value approach emphasized by uses and gratifications researchers.

The expectancy-value approach indicates that media use is viewed as a function of individuals' satisfaction of media (Palmgreen et al., 1985; Palmgreen & Rayburn, 1985a, 1985b). Media satisfaction includes two important components – expectancy and evaluation of media. “Expectancy” is the “perceived probability that an object possesses a particular attribute or that a behavior will have a particular consequence, whereas “evaluation” is defined as “the degree of affect, positive or negative toward an attribute or behavioral outcome” (Palmgreen et al., 1985, p. 22). Thus, media satisfaction is an antecedent to attitude change and is an important correlate of behavior to media use. Media satisfaction is expressed in the following model where b_i is the perceived beliefs that

media object X possesses a particular attribute, and e_i is the affective evaluation of the attribute” (Palmgreen & Rayburn, 1985a)

Media Satisfaction = $\Sigma b_i e_i$

The expectancy-value approach and the model of media exposure and appraisal help explicate certain fundamental gratification-consumption processes about health information seeking. Satisfaction (expectancies and evaluation) with the characteristics of the media influences individuals' motives to seek associated gratifications, which in turn has an impact on their media consumption. By the same token, individuals' evaluations about media are associated with their beliefs of the media, which therefore motivate them to seek information from the media.

Conclusion

Prior studies indicate that the cyberspace has become a venue for discussing or receiving information related to embarrassing topics such as STDs and HIV/AIDS (Bull et al., 2001; Smith et al., 2000). This study, based on studies conducted in the western world, develops an integrated model discussing factors which influence young people's STDs and HIV/AIDS information seeking on the Internet. The components of the integrated model include factors such as traditional channel usage, perceived social norms, personal factors (e.g., demographics, experience with STDs and HIV/AIDS, perceived susceptibility to STDs and HIV/AIDS, attitude toward online STDs and HIV/AIDS information seeking, perceived sufficiency of STDs and HIV/AIDS information, self-efficacy to control STDs and HIV/AIDS infection, Internet self-efficacy, internet dependency, and personality traits), and satisfaction with Internet characteristics and online STDs and HIV/AIDS information. It helps researchers understand factors affecting individuals' information seeking about STDs and HIV/AIDS.

In fact, different cultures may generate different factors which affect young people's information seeking about STDs and HIV/AIDS on the Internet. However, young people in Taiwan are also found to be more sexually active, to be more likely to engage in risky sexual behavior than in the past (CDC in Taiwan, 2004; Chen, 2003; Hsae, 2003; Kou, & Lee, 2001; Yeh, 2002), to have more opportunities to use the Internet (Chou, Chou, & Tyan, 1999; Chou & Hsiao, 2000; Chou, 2001; Lu, 2004), and to have fewer sources for accessing STDs and HIV/AIDS information (Yeh, 2002). Young people in Taiwan may as well bypass the traditional channels and increasingly turn to the Internet for STDs and HIV/AIDS information. As existing STDs- and HIV/AIDS-related studies in Taiwan tend to focus on sexual risk taking and perception of STDs and HIV/AIDS (Yeh, 2002), condom use (Chen, 2003; Lin & Ju, 2004), medical care of AIDS (Hsu, 1999), health practitioners' knowledge and attitudes toward AIDS (Hwang, 1992; Wu, 1991), medical practitioners' acceptance of AIDS patients (Hwang, 1992; Lin, Hwang, & Wen, 2003), individuals' acceptance of AIDS tests (Yung, 1993), and stigmatization of STDs and HIV/AIDS (Tsu, Huang, Lai, Ming, & Su, 2004), studies about online STDs and HIV/AIDS information conducted in American may provide Taiwanese researchers some thoughts as they start to investigate factors influencing young people's information seeking about STDs and HIV/AIDS on the Internet.

In short, through the exploration of how factors (e.g., traditional channel usage, perceived social norms, personal factors, and satisfactions with Internet characteristics and online information) influence health information seeking among young people in America, the integrated model proposed in this study will also yield some thoughts for Taiwanese researchers about understanding online STDs and HIV/AIDS information among young people in Taiwan where online STDs and HIV/AIDS information seeking studies are still insufficient. Most importantly, it will enhance Taiwanese education administrators', health educators', public

health practitioners', and health communication researchers' understanding of online STDs and HIV/AIDS information seeking among young people, which sequentially reinforces their notions about how to design effective online STDs and HIV/AIDS intervention/education programs and conduct future online STDs and HIV/AIDS information seeking research.

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影響年輕人網路上尋求性病與愛滋病毒 /愛滋病訊息的因素為何？ 美國研究經驗的啟示

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摘要

研究發現網路漸漸成爲年輕族群搜尋性病與愛滋病毒/愛滋病等相關資訊的主要管道。本文試圖以美國經驗爲基礎，提出一個瞭解年輕人網上搜尋性病與愛滋病毒/愛滋病資訊的整合模式，此一模式陳述社會情境、個人因素（例如人口變項、個人疾病經驗、個人設想罹病的可能性、自我信念、對疾病資訊尋求行爲的態度、個人對疾病資訊足夠與否的感受與人格特質）及資訊尋求者對網路特質與網上性病與愛滋病毒/愛滋病資訊的滿意度對網路性病與愛滋病毒/愛滋病資訊行爲尋求的可能影響。近來統計數字也顯示台灣年輕族群感染性病與愛滋病毒/愛滋病的比率不斷攀升，但有關該族群在網路上尋求性病與愛滋病毒/愛滋病相關資訊的研究卻不多，本文的討論也可作爲台灣研究人員日後研究台灣年青人網路尋求性病與愛滋病毒/愛滋病資訊行爲及健康教育人員設計網路性病與愛滋病毒/愛滋病防治計畫的參考。

關鍵字：性病，愛滋病毒/愛滋病，網路資訊尋求