Developing a Tool for Youth AIDS Education, The HIV-Specific Health Risk Assessment

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Abstract

Effective health instruction for disease prevention includes recognition of personal susceptibility and skills to modify behavior. Adding an individualized HIV-Specific Health Risk Assessment to an AIDS education program would allow the health educator to tailor disease prevention education messages to both individuals and groups. The three purposes of this paper are to (a) discuss the need for an HIV-Specific HRA; (b) outline the steps taken to design the instrument; and (c) discuss instructional applications of the instrument.

Introduction

A new web site, the HIV-Specific Health Risk Assessment (HIV HRA), was recently developed to enhance school and community AIDS education programs for youth and young adults. Preventing HIV infection requires more than learning factual knowledge about HIV etiology and treatment, and risk-reduction behaviors. It must also include skills training and practice activities to assist students to assess personal susceptibility to HIV and subsequently modify risks where appropriate (Collins & Britton, 1990; Firkaly, 1991; Geiger, 1993; Geiger, Petri, Winnail, & Lan, 1996; Kerr, Allensworth, & Gayle, 1991; Rosenstock, 1991).

The Need to Determine Personal Risk of HIV/AIDS

Adolescents and young adults have received information about AIDS from parents, schools, health professionals, and the media. Today, some form of AIDS education is often included in school health instruction for middle and high school students. It has been reported that eight out of 10 states and school districts require HIV prevention education (Collins, Small, Kann, Pateman, Gold & Kolbe, 1995). Also, 77% of classroom teachers taught HIV prevention as a major topic in their courses. However, each state and school system is free to determine its own content standards.

Unfortunately many youth continue to practice unsafe sex, drug use, and other high-risk behaviors. HIV infection is not viewed as a personal threat among all youths, even those with a history of risky sexual and drug use behaviors (Centers for Disease Control, 1991; Geiger, 1993; National Research Council, 1994; Turner, Miller & Moses, 1989; Walter, Vaughan, Ragin, Cohall & Kasen, 1994;). Populations targeted by the CDC to be in the greatest need of prevention service include African Americans and youths ages 15-20 years (American Association of World Health, 1998).

Designing a Health Risk Assessment Instrument for HIV Education

In 1994, a team of university health educators realized the increasing need to personalize HIV education messages for youths and young adults. Not all teens and young adults have had the opportunity to assess their individual risk of HIV and subsequently consider the consequences of unhealthy practices. Health education to prevent disease includes providing basic information regarding risk of unprotected sexual intercourse, with experiential learning activities to explore methods of avoiding unprotected intercourse (Cunningham, 1995; Kirby et al., 1994). The addition of an individualized risk assessment to an HIV/AIDS education program allows the health educator to tailor his or her disease prevention education to the specific risky behaviors reported by the individual student or client (Geiger, et al., 1996).

Three goals that guided development of the HIV HRA were: 1. Assist the user to derive an estimate of personal risk of HIV infection; 2. Encourage health behavior change for those with high-risk sexual and

drug use practices; and, 3. Provide referrals to clinical and human services providers. The HIV HRA was not designed to be used in place of an exam by health care providers.

Before writing questionnaire items, the developers of the HIV HRA reviewed the professional health education literature relevant to health risk assessment and health instruction (Kann, 1987; Kirby et al., 1994; Kruse, 1994; Paperny, Aono, Lehman, Hammar & Risser, 1990; Starkman, 1988). Developers also reviewed computer software programs such as Resisting Pressures: Alcohol Resistance Education That Works (1994); That's Trouble (1994) and others (Emory University, 1991; Petri & Doherty, 1994). Relevant web sites were also reviewed:
http://www.thebody.com/surveys/sexsurvey.html;
http://www.safersex.org;
http://152.356.120/h-devil/stds/protect.htm
The authors did not identify another HRA used to estimate risk of HIV infection that included information on validation.

HIV HRA Health Risk Assessment Development

The HIV HRA was initially developed in 1994 as a brief written assessment tool that could be administered in school and community settings in only 20-30 minutes. The original intent was to develop a simple paper and pencil measure for classroom use. Small research and development grants were then obtained from state agencies to further develop the assessment tool for broader instructional use.

In 1996, three health educators, an educational technologist, and two programmers collaborated to develop a computer software program of the HIV HRA using MultiMedia ToolBook 3.0 by Asymetrix. Developers had planned to produce CD-ROM software for distribution to schools and agencies that serve youths and young adults. With the advent of Internet technology, developers elected to create a web site by adapting HIV HRA items using Internet compatible programming language. The advantages of a web site over CD-ROM software included low cost to construct, update, and maintain, wider access for the target audience, and flexibility to add linkages to national resources for HIV and AIDS education and services. The web site was launched in 1999.

The HIV HRA asks each participant to answer a series of questions about his/her knowledge, intentions, and behaviors related to HIV infection and AIDS. Using a mouse and simple keyboard strokes, users provide demographic information and respond to 28 items. Items were written at the seventh grade reading level, verified by a SMOG Index analysis. For instance, the user responds to the item, "I would feel pretty comfortable talking to a sex partner about birth control" by selecting from three choices, "True; False; or Don't Know/Unsure." Based on their responses to HRA items, each user receives a personalized printout summarizing their responses into high, medium, and low risk categories.

It cannot be stressed enough that the HIV HRA should not be used as a "stand alone" risk identifier. It should be used in the context of broader health education efforts. If used appropriately, this computerized health risk assessment has the potential to be of great benefit both within and outside of the classroom.

Validity and Reliability

Content validity is essential to ensure that an instrument covers the content and behaviors relevant to what it purports to measure. Reliability testing establishes the consistency of the instrument. Both tests are necessary to provide credibility to the instrument as a valuable assessment and educational tool.

Face validity has been established for the HIV HRA. Assessment items were written after an extensive review of the professional health education research literature. This review included research regarding what is known and not known regarding risk for contracting HIV. The authors then developed the HIV HRA items based on those behaviors, knowledge and attitudes which seem most risky among adolescents and young adults for contracting HIV. The opinions of experts in the field were obtained using the Delphi technique.

It should be noted that face validity was sought using a paper version of the HIV HRA. The items were identical however, to those ultimately presented on the web site (altered only as suggested by reviewers). The first round in the Delphi process included twenty-two health and educational professionals from four states. These reviewers represented secondary school and university faculty, epidemiologists, physicians, state department of education curriculum specialists, health department and substance abuse clinicians, psychologists and counselors, and AIDS educators. Reviewers examined the scope of HRA content and answered

structured questions to estimate relative risk of items. The reviewers received a small incentive (long distance telephone calling card) upon completion of both rounds of the Delphi process.

The result of the first round of review resulted in a simplification of the HRA item scoring and overall user feedback. Authors agreed with reviewers to abandon the concept of deriving an overall risk score in favor of providing a risk estimate for each response to all items. It was deemed impossible to accurately quantify actual risk of HIV exposure. Reviewers also recommended changing from five to three categories of risk. The original risk categories were: very high, high, medium, low, and very low. This was subesquently changed to scoring of high, medium, and low risks.

Simultaneously with the expert review, the HIV HRA was pre-tested with 10 classes of students who attended three different Alabama universities. This was done to get an assessment of the instrument's content from a non-random sample of the target audience. Students were enrolled in psychology, health education, and educational technology courses. This process utilized a convenience sample and simply served to provide support or non-support of the items contained in the instrument. Students offered helpful suggestions to improve the content and format of HRA items. Revisions to the assessment tool were completed after expert review and student pre-testing.

The second round of the Delphi Technique process was subsequently utilized to further examine and validate the items in the tool. This review required each reviewer to rank each user response option as a high, medium, or low risk.

As a result of the second review, the risk estimates for individual items were modified. Reviewers emphasized the importance of additional response choices for users who abstain from risky practices. The feedback of HRA results provided to users was also simplified. Results of the validation study were presented at the Tenth International Conference on AIDS Education in Atlanta, GA in November of 1996 (Geiger, et al., 1996).

The reliability of the instrument was determined by analyzing the internal consistency with the use of the SPSS program. It was found to be satisfactory with an alpha of .73. This analysis examined the responses of 70 college students from two universities. Informed consent was obtained from all students to store anonymous responses in a group database. The database is restricted to use by theproject researchers. This database was, and is, accessible only by the project researchers.

Advantages of Computer-Assisted Instruction for HIV/AIDS Education

The advantages of using computer-assisted instruction (CAI) in the health classroom are many. A well-designed software program allows a standard presentation of important information on specific health topics. This is particularly important for sensitive personal health topics. Too many elementary and secondary educators lack health-specific training, or they feel uncomfortable with HIV and AIDS education (General Accounting Office, 1990; Goldberg and Governali, 1990; Kirby, 1992; Rodriguez, Young, Renfro, Asencio and Haffner, 1996; Turner, Miller, and Moses, 1989).

Computer-assisted instruction allows each student to work at an individualized pace and repeat lessons as needed, or desired. Some students may prefer the confidential nature of CAI instruction for personal health topics over written exercises and face-to-face dialogue with their teachers about health habits (Heinich, Molenda & Russel, 1989; Kann, 1987; Paperny, et el., 1990). Health teachers can expand disease prevention lessons with the HIV HRA web site and assist students to determine their individual risk for HIV infection and AIDS. There are numerous advantages of the HIV HRA web site for users. It is user-friendly and interactive, requiring no advanced computer skills. Another advantage is the automatic response categorization and instantaneous display of feedback, estimating the individual's potential for recent exposure to HIV. This instantaneous display of responses by category may allow the user to reflect on personal behaviors and perhaps motivate the user to modify those that are risky. Each response is categorized as high, medium, or low risk. Responses can then be viewed in categories, which will be a reflection of personal behaviors, beliefs, and intentions. Users identified as 'at-risk' for HIV and AIDS receive recommendations for HIV blood testing and counseling. Sample

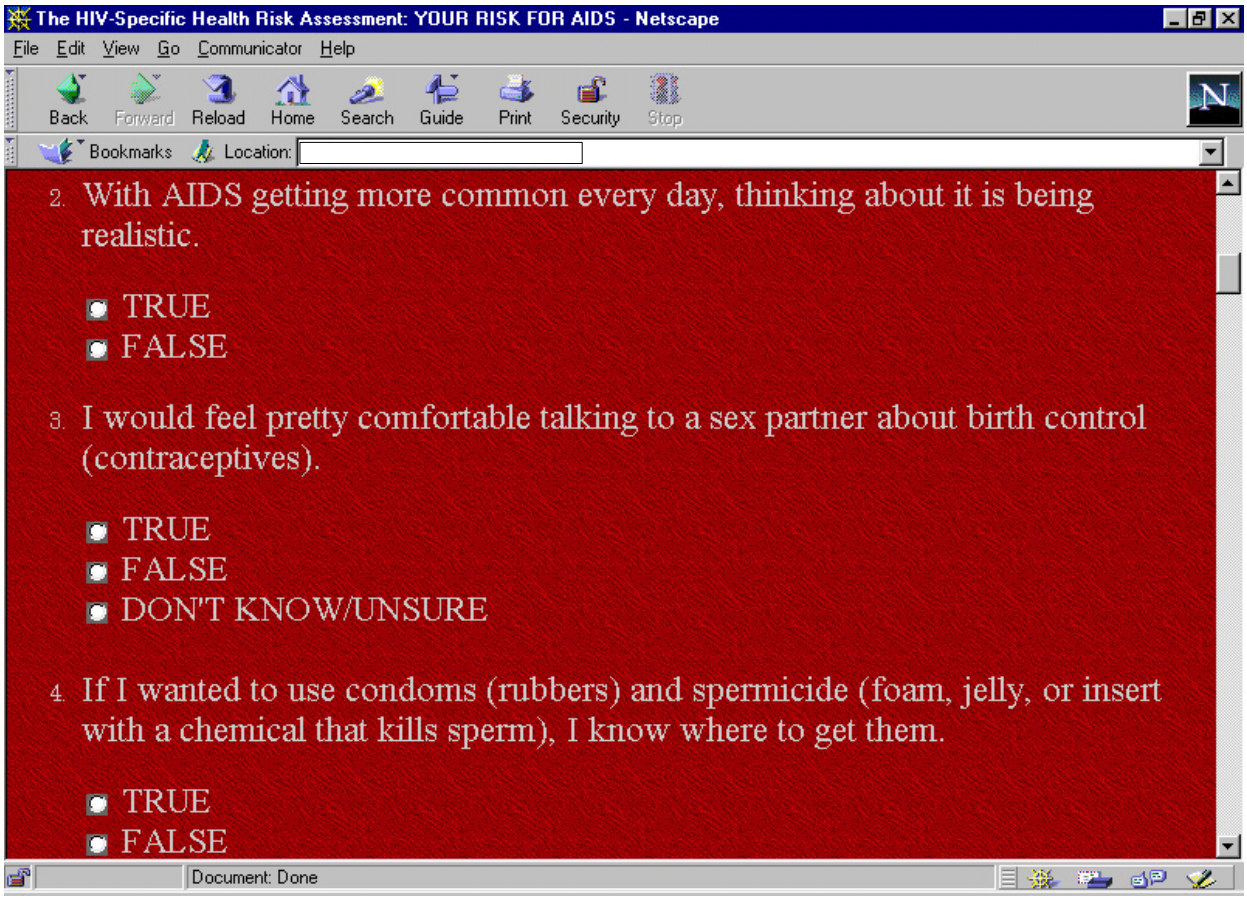

Figure 1 Sample Question Screen

questions can be viewed in Figure 1. Sample feedback screens can be viewed in Figure 2.

Users can easily navigate the program, verify answers, and change their responses prior to obtaining final summaries. Students may elect to print a listing of national resources for HIV counseling and diagnostic testing, disease prevention education, HIV and AIDS treatment, sexual abuse prevention, and treatment of drug and alcohol abuse and addiction problems.

Instructional Applications of the HIV HRA Web Site

The HIV HRA web site was developed with the capability to store users' responses. While the site is under construction, (it is operational; the authors wish to open it up to public usage as soon as further testing and refinements are complete) users are asked to provide informed consent to collect data without individual identifiers. Additionally, since the site is still under refinement, the HIV HRA is password protected. Users cannot review others' responses.

A trained AIDS educator or clinician can offer confidential counseling to interpret the meaning of a user's responses and emphasize actions to reduce personal risk of HIV infection. Counselors can discuss the meaning of the three risk categories and provide guidance for alternative behaviors to reduce HIV risk. The user can choose to clear his or her individual responses after reviewing the results.

The HIV HRA is potentially useful as a simulation tool. For example, students can identify low and high-risk drug use and sexual behaviors and construct a fictitious character. Using the HRA

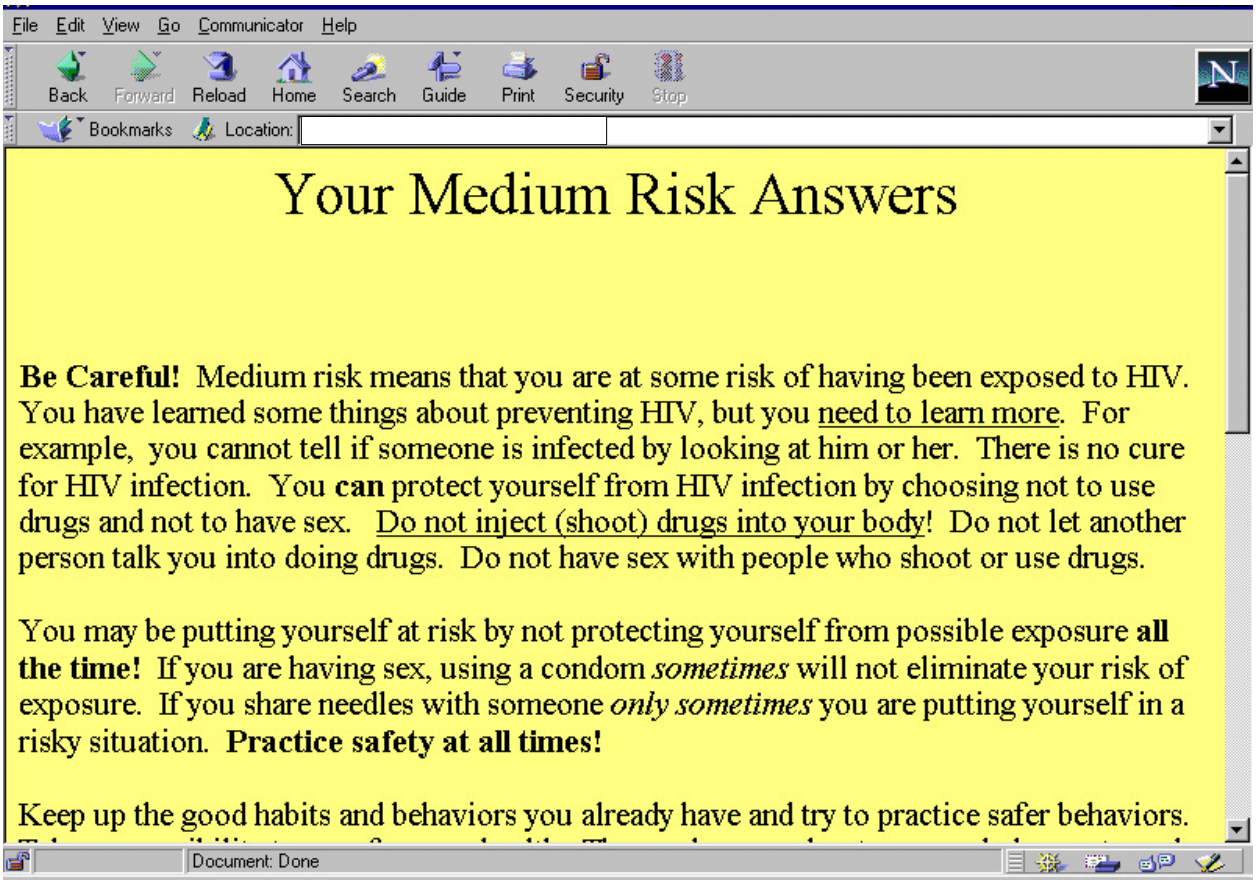

Figure 2 Sample Response Screen

program in class, they can then discuss the consequences of such behavior. The ramifications of modifying such behaviors can also be illustrated and discussed.

Health risk appraisal use should be accompanied with counseling by a trained health professional. The developers believe this to be the most ethical way to utilize HRAs. Because of this fact, this web site may remain accessible only through registration with the developers. This will allow the developers to monitor who is using the tool and for what purpose and yet maintain low-cost, easy access.

An HRA web site is anticipated to have broad utility for instruction across health topics, settings, and populations. The potential future applications of this approach to health risk assessment are quite extensive. Sample health topics for future HRA development may include identification of risks for contracting sexually transmitted diseases, eating disorders, alcohol abuse, uncontrolled stress, skin cancer, and cardiovascular disease. The HRA can be used to educate individuals about the potential consequences of unhealthy actions, for instance, bingeing and purging, or alcohol dependence.

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