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A Computer-Based Interactive Multimedia Program to Reduce HIV Transmission for Women with Intellectual Disability

Dr. Khaya Delaine

kclark@techaidinstitute.com, Technological Assistance Institute for Intellectual Disability, Eugene, Oregon, United States

Abstract

Background—Despite recent recognition of the need for preventive sexual health materials for people with intellectual disability (ID), there have been remarkably few health-based interventions designed for people with mild to moderate ID. The purpose of this study was to evaluate the effects of a computer-based interactive multimedia (CBIM) program to teach HIV/AIDS knowledge, skills, and decision-making.

Methods—Twenty-five women with mild to moderate intellectual disability evaluated the program. The study used a quasi-experimental within-subjects design to assess the efficacy of the CBIM program. Research participants completed five qualitative and quantitative instruments that assessed HIV knowledge, and decision-making skills regarding HIV prevention practices and condom application skills (i.e., demonstration of skills opening a condom and putting it on a model penis). In addition, 18 service providers who work with women with ID reviewed the program and completed a demographics questionnaire and a professional customer satisfaction survey.

Results—Women with ID showed statistically significant increases from pretest to posttest in all knowledge and skill domains. Furthermore, the statistical gains were accompanied by medium to large effect sizes. Overall, service providers rated the program highly on several outcome measures (stimulation, relevance, and usability).

Conclusions—The results of this study indicate the CBIM program was effective in increasing HIV/AIDS knowledge and skills among women with ID, who live both semi-independently and independently, in a single-session intervention. Since the CBIM program is not dependent on staff for instructional delivery, it is a highly efficient teaching tool; and CBIM is an efficacious means to provide behavioral health content, compensating for the dearth of available health promotion materials for people with ID. As such, it has a potential for broad distribution and implementation by medical practitioners, and public health offices. People with ID are part of our society, yet continue to be overlooked, particularly in the area of health promotion. Special tools need to be developed in order to address the health disparities experienced by people with ID.

Keywords

Intellectual Disability; Mental Health; Technology; Psychiatric disorders

Introduction

Recent federal and international reports have centered the health and well-being of people with intellectual disability (ID) as an urgent priority (Groce, 2004, Sachter, 2002, U.S. Public Health Service, 2002, U.S. Department of Health and Human Services, 2000, World Health Organization, 2005). Using a social determinants of health model to address health disparities, scholars (Krahn et al., 2006) suggest that researchers need to focus on the interplay of genetics, social location, environment, health promotion, and health access to address health outcomes among people with ID (ibid). In particular, developing preventative sexual health interventions is listed as an international concern (Servais, 2006, World Health Organization, 2005). Historically, the sexual lives of people with intellectual disability have been ignored (Groce, 2004, Cambridge, 1998) or addressed through forced sterilization procedures (Dorozynski, 1997, Kempton and Kahn, 1991).

There are approximately 7.5 million people with intellectual disability (i.e., mental retardation) living in the United States. Approximately 90% of these individuals have a mild intellectual disability (American Psychiatric Association, 1994, Luckasson et al., 1992). Many individuals with intellectual disability (ID) are sexually active; and they are at equal or greater risk for exposure to the HIV virus (Groce, 2004, Groce and Trasi, 2006). Due to the intersection of gender, disability, and poverty, women who have ID are highly susceptible to HIV infection (Groce and Trasi, 2006) because of sexual exploitation (Servais, 2006), low literacy rates (Groce, 2003), and limited access to health prevention programs. Limited knowledge of sexual health (Galea et al., 2004), low self-esteem, difficulty communicating needs and wants, and limited access to health care, increases the probability that women with ID are likely to become some of the 250,000 undiagnosed carriers of the HIV virus (Bank, 2004, Groce, 2005). At the end of 2003, CDC estimated that between 1,039,000 and 1,185,000 people in the United States were living with HIV/AIDS (Rhodes, 2005), and that women account for approximately 27% of new infections. Of new infections, approximately 78% occur through heterosexual contact.

The prevalence of sexual exploitation among individuals with ID, coupled with the paucity of health promotion interventions for people with ID (Groce and Trasi, 2006, Health, 2009, Servais, 2006), led us to design a prototype HIV prevention program based on best practices in HIV intervention research (Card et al., 2001, Card et al., 2009). We evaluated our computer-based interactive multimedia (CBIM) HIV prevention program with women with mild to moderate intellectual disability (I.Q. approximately 55 through 75). In addition, 18 service providers who work with women with ID reviewed the program, completed a demographics questionnaire and a professional customer satisfaction survey. This health-promotion intervention covered content in these areas: a) HIV transmission through sexual contact (b) HIV prevention through condom usage and abstinence (c) HIV testing, (d) condom facts, and (e) condom application skills e.g., how to put on a male condom.

Study 1

Participants

A convenience sample of twenty-eight women with ID was recruited to participate in the evaluation by vocational and residential agencies serving people with ID. All research participants were from the Pacific Northwest. Three of these women failed to keep 3 or more appointments, one quit prematurely during the program, and one finished the program and exit interview but did not complete the computer-assisted posttest. Our final sample varies by variable, the maximum being 25 and the minimum being 23. Two of these women were Latina; 14 were White, one African-American, three Native American, two were of mixed race, and five did not know their race or ethnicity. The participants with ID ranged in

age from 24 to 59 (mean 41.2, s.d. 9.3). Fourteen lived independently, eleven semi-independently. Nine were employed, two full-time, six part-time, one in a volunteer job. Two of these nine worked in sheltered employment, two in supported community jobs, and three at non-supported community jobs (one did not report). Eight were single and had never married, three were single but were separated, divorced or widowed, 12 had live-in partners and two were married. Seventy-six percent of these women said that the last time they had sex, they did not use a condom, and only 56% had condoms at the time of the assessment. Thirty-two percent said they never talked to their partner about AIDS, 24% said they sometimes did, 8% said they talked about it a lot and 36% said they talked about it all the time.

Design

A within-subjects quasi-experimental design was used to analyze the feasibility of the CBIM program. Women with ID (n=25) completed a 52 question qualitative interview and a 25-item Audio Computer Assisted Self-Interview [A-CASI] (de Leeuw and Nicholls, 1996, de Leeuw et al., 2003), at pretest and posttest. A-CASI is a technique in which a computerized voice-over reads questions to research participants. Due to low literacy levels among people with ID, this methodology is useful because no reading is required, and the format fosters more candid reports of sensitive behaviors and topics than interviewer-administered techniques (Borgers et al., 2000, de Leeuw et al., 2003). Upon completion of the posttest, research participants completed a user satisfaction interview. Total participation time was approximately 1.5 hours. The Oregon Research Institute Institutional Review Board (IRB) approved the evaluation protocol prior to implementation. All research participants signed an informed consent statement.

Measures

The pretest and posttest qualitative interview, administered by research staff, consisted of 52 questions related to demographics, knowledge and skills. Questions in the knowledge domain assessed: a) HIV transmission through sexual contact (b) HIV prevention through condom usage and abstinence (c) HIV testing, and (d) condom facts (e.g., where to buy and how to store condoms). In the skill section, research participants were asked to show the behavioral steps associated with opening a condom and putting a condom on a realistic model penis. The qualitative questions were constructed in several formats (Likert-scales, binary, and open-ended).

Following the qualitative interview, research participants completed an A-CASI pretest. This instrument consisted of 25 items developed by other researchers in the HIV/AIDS field. We used items from the Handbook of Sexuality-Related Measures (Davis et al., 1998). Specifically, we chose items from the HIV-Knowledge Questionnaire (Carey et al., 1998), A Measure of AIDS Prevention Information, Motivation, Behavioral Skills, and Behavior (Misovich et al., 1998), the Multidimensional AIDS Anxiety Questionnaire (Snell and Finney, 1998), and the HIV Prevention Knowledge Test for Teenagers (Yarber and Torabi, 1998). Both items and answer choices were adapted to interactive multimedia video format. In addition, items taken from the above, standardized instruments were modified to be more appropriate in language and structure for the sample. For example, the original language used in item 11 from the HIV-Knowledge Questionnaire is: "Pulling out the penis before a man climaxes or cums keeps a woman from getting HIV during sex." We simplified the language in this item to "Can a woman get HIV if a man pulls out his penis before he climaxes or cums?" A professionally trained narrator delivered this question through video.

Two vignettes were included in the A-CASI pretest that assessed decision-making skills relevant to dating situations and HIV/AIDS communication. For example, in the first

vignette, the narrator told a brief story: “Margarita and Carlos have had sex with other people, and now they want to have sex with each other, but they don’t want to get HIV or AIDS. What are the right choices for them to keep from getting HIV?”¹ Four response stems were presented and respondents answered, “yes” or “no” to the question, “Is this a good choice?”² The other vignette story was “Stacey and Darrell are dating each other, and they are thinking about having sex but they want to talk about HIV and AIDS first. Some of the things they say are right and some are wrong.” Users watched five video stimuli and were asked whether the video statements³ were “right” or “wrong.”

Procedure

Prior to the computerized pretest, a series of instructional screens showed the users the types of pre-test screens and the meaning of each response option. For example, the computer voice-over stated, “On question screens you will be asked a question and then you will be able to use the mouse to answer that question or make a decision. There are several kinds of question screens. Each of these works a little differently. One kind of question screen is the Yes, I don’t know, and No screen. This is how a Yes, I don’t know, and No Screen looks. This screen has a thumbs-up button, an I don’t know button, and a thumbs-down button. Thumbs up means yes. Open hands means I don’t know, and thumbs down means no. Watch how it works.”³ As depicted in Figure 1, the yellow circle appeared when the voice-over explained each button type.

Another type of pretest item was a Likert-type response format. With this type of item, one video narrator asked a question. For example, “Would you feel uncomfortable buying condoms?” A second video narrator, depicted in figure two, presented three video-based, Likert-type response options: (a) Yes, I would feel very uncomfortable buying condoms, (b) Yes, I would feel a little uncomfortable buying condoms,” and (c) No, I would be fine buying condoms. Each response option was presented one at a time. This response format is depicted in figure 2.

Based on A-CASI procedures, the narrator used the same inflection across response options to ensure that response delivery was consistent.

Instructional Design of the HIV Intervention

The Phase I project, “*Being female: My body, my responsibility*,” was designed using Direct Instruction (DI) design principles. A substantial body of research has demonstrated the efficacy of this instructional methodology among people with ID (Carnine, 1980, Engelmann and Carnine, 1982, Gersten et al., 1982, Lockery and Maggs, 1982). The key elements of DI are: (a) identifying the sequence of skill components, (b) organizing the teaching of the skill components, (c) presenting a range of examples to allow practice of skills, and (d) providing immediate assessment with error correction and remediation as warranted. To meet the unique learning needs of people with ID, each content area is broken into component concepts or skills. In addition, we used Bandura’s social learning theory

¹The response stems were: (16) Both would urinate and wash their private parts after sex, (17) Margarita would take the birth control pill, (18) Carlos would wear a condom during all sex, and (19) They wouldn’t have sex with each other after all.

²The statements were prefaced with the question “Is this right or wrong?” (21) It’s safe for us to have sex since neither one of us looks like we are infected (22) If we have sex, Darrell should use a condom, (23) Neither one of us is gay, but there is still a chance that we could get HIV, (24) We don’t know each other’s past, so there is still a chance we could get HIV, and (25) Even if we’ve been tested there’s still a chance of getting HIV.

³At this point in the instructional training, a yellow circle highlighted the “thumbs-up” button while the computer voice-over stated “yes.” Following this, the “open hands” was highlighted while the computer voice-over stated, “I don’t know.” Finally, the “thumbs-down” button was highlighted and the voice-over stated “no.” Subsequently, the user was prompted (i.e., “Here’s one for you to try”) to listen to an example question and then to click on the “thumbs-up” “open-hands,” or “thumbs-down” button.

[vicarious learning through modeling] (Bandura, 1986) to create video vignettes showing a heterosexual couple negotiating condom usage.

Based on the literature and our previous work, an effective approach to promoting safer behavior among women with ID is a knowledge-based, socio-behavioral skills model. Although the process for teaching decision-making and social skills to people with ID is qualitatively different than the process for people without ID, the fundamental nature of the task is not different (Huang and Cuvo, 1997, Moffatt et al., 1995, Valenti-Hein et al., 1994, Wehmeyer and Kelchner, 1994). In the context of high-risk behavior, the ability to: (a) recognize high-risk behavior and situations, (b) select an appropriate response, and (c) implement those decisions are all critical components of making responsible, pro-social decisions. This model has proven effective in a number of behavior change/behavior development programs we have produced for youth and adults with ID including Preventing Substance Abuse and Crime in Special Populations (Wells, 2005), and Emergency Preparedness for People with Intellectual Disabilities (Wells, 2006). We believe that the components of this model apply to women with ID who will be making independent decisions about their sexual and self-care behaviors.

The project was designed to cover the following content areas a) transmission of HIV through sexual contact, b) HIV avoidance strategies i.e., barriers and abstinence c) getting tested for HIV (e.g., recognizing the need, finding a clinic resource), and d) taking responsibility for condom usage (i.e., what a condom is, where to purchase, where to store, how to put a condom on a penis).

The first program segment (i.e., transmission of HIV through sexual contact) taught four components of HIV/AIDS knowledge: (a) HIV is a virus that causes AIDS, (b) AIDS is a disease for which there is no cure (c) semen and vaginal secretions are high-risk fluids, and (d) what constitutes sexual behaviors e.g., activities that involve seminal and vaginal secretions. This knowledge-based segment provides the foundation for all remaining programmatic content. Recognizing that HIV virus is a “germ” that gets in the body and causes AIDS is one component or pre-skill to understanding that HIV is transmitted through sexual contact. The second component or pre-skill required for understanding that HIV is transmitted through sexual contact is to recognize that sexual behavior, within the context of this program, consists of activities involving semen and/or vaginal fluid. Component or pre-skill training uses animation, graphics, still-frame, and voice-over narration to teach relevant discriminations (e.g., germs get in the body through openings in the body; semen is risky because it can carry HIV; semen is always related to the penis). Throughout the program, animated figures are used in instances when it is necessary to show body parts (e.g., ensure that program users understand where semen comes from). When defining activities such as vaginal or anal intercourse, we use a general area of the body in our definition (e.g., graphic overlay of anal intercourse with a circle on an animated figure, indicating vicinity), however the program does not model an actual insertion of penis into anus, or penis into vagina, or penis into mouth. Voice-over narration describes the behavior and which parts of the body are involved (i.e., “vaginal intercourse is when the penis is on or in the vagina”). In all instances, the program reinforces the fact that during interpersonal intimate interactions, a condom should always be placed appropriately on the erect penis to avoid possible contact with semen (regardless of its “target” orifice).

The HIV avoidance strategies segment offers limited options to women with mild ID. Since negotiating with a partner about condom use has a low probability of success for women with mild ID (i.e., exploitative relationships, difficulty communicating needs and wants, power imbalance), the only ways to truly minimize or escape high-risk situations are to: a) demand use of a condom when interacting with a penis, even in instances of “hand sex” (i.e.,

hand sex is common vernacular in special education classroom settings), or to (b) get away from the situation to maintain a position of abstinence. To this end, we used video vignettes that showed examples of a heterosexual couple (Sandra and Bill) negotiating condom use. In one example, Bill expresses his desire to have sex with Sandra. Sandra concedes that she would like to have sex, too, but she will only do so with a condom. Following this vignette, research participants were presented with this interactive question: "Sandra has just told Bill that she wants to use a condom if they have sex. Is Sandra setting a boundary?" If a user answered "no" to this question, she listened to the following correction and remediation "The correct answer is yes. Sandra is setting a boundary by saying she wants to use a condom if they are going to have sex. It's OK to set a boundary. Sometimes when you set a boundary, someone else won't like it. That's OK. They will try to get you to change your boundary. That's NOT OK. They may get angry with you. They may try to convince you that you don't need your boundary; that you can go beyond your limits. They may threaten to leave you if you keep your boundary. They may say that they don't like you and won't be your friend if you don't do what they want. They may say that you are hurting or disappointing them. All these things may happen. People who pressure you to do something you don't want to, are not really your friends. It's not OK to do something you don't want to do just to be liked." Participants who answered the question incorrectly, were tested again after seeing the correction and remediation segments.

The third segment (i.e., getting tested for HIV) addresses the importance of knowing your status, the need for treatment if HIV positive, and the potential transmission to a child either in-utero, during birth, or while breastfeeding. The taking responsibility for condom usage section of program differs from typical "condom negotiation" models because the most protective message we can give to women with mild ID is that condom use is not negotiable. This program segment addresses what a condom is, where to purchase them, keeping them handy, and how to put a condom on a penis. On-screen actors model pro-active or assertive communication strategies in the event that the boundary is challenged. Finally, we used on-screen graphics and animation to demonstrate how to put a condom on a penis.

Setting

The study was conducted at a research institute in Eugene, OR. Research participants completed the pretests, HIV prevention program, and the posttests on laptop computers provided by research staff. Project staff administered informed consent. After obtaining consent, research participants completed all evaluation activities. Research participants wore computer headphones as they used the interactive program.

Methods

We conducted a repeated measures ANCOVA for all continuous or ordinal measures, which tests the net gains in scores from pretest to posttest. For dichotomous measures, we used a chi-square test to test the dependence of research participant responses on assessment time, pretest versus posttest. As a measure of effect size, we calculated a partial r value (Rosenthal and Rosnow, 2008). According to Cohen (1988), the magnitudes of partial point-biserial effect sizes are: .13 (small effect), .36 (medium effect), and .51 (large effect).

Results

Nine scores were computed and analyzed from the qualitative interview that was administered at pre-test and posttest: 1) HIV basic knowledge, 2) identification of high-risk fluids, 3) ways to get HIV, 4) HIV-safe practices, 5) safer-sex knowledge, 6) beliefs about condom use, 7) where to get HIV tests, 8) condom application, and 9) responsibility for condom use (percent who said it was their personal responsibility to use a condom). Statistically significant gains were observed on 7 of the 9 scores and a strong positive trend

was seen on 1 of the two non-significant scores (Condom Use Responsibility). Table 1 displays the means, standard deviations and effect sizes of these scores.

The results from table 1 indicate that, with the exception of one domain i.e., identification of high-risk fluids, all participants showed statistically significant gains in both HIV knowledge and condom application skills, with very strong effect sizes. Given the modest sample size, the effect size estimates indicate that the magnitude of the intervention effect was quite robust.

Six scores were derived from the A-CASI pretest and posttest: 1) Facts about AIDS (nine questions were dropped from analysis since over 90% of respondents answered them correctly at baseline), 2) Worry about getting AIDS, 3) Vignette 1 (questions 16, 17, and 19; question 18 was dropped because over 90% got it correct at baseline) and 4) Vignette 2 (questions 21, 23, 24 and 25; question 22 was dropped since over 90% got it correct at baseline, 5) Risk perception i.e., percent who said they're at risk for getting AIDS, 6) Condom use intent (question 12, percent who said they wouldn't have sex if they didn't have a condom).

Statistically significant gains were found on the Facts and Vignette 1, and each is associated with strong effect sizes. Similarly, Risk Perception, and Condom Use Intent scores indicate both statistical significance and large effect sizes as shown by the phi coefficients. Strong trends, though not significant change, were observed on the Worry and Vignette 2 scores. Table 2 displays the means, standard deviations, and effect sizes of these scores.

Study 2

Materials and Methods

Participants—Eighteen professionals serving people with ID (vocational and residential programs, The Arc, brokerages and state and county agencies) in Oregon and Washington completed the evaluation. All eighteen service providers were women, 81% were White and 15% did not report their race. Forty-eight percent identified their work area as case management, 19% as personal assistant/advocate, 24% worked in residential programs, 1 (4.8%) was a home visitor/parent educator and 1 (4.8%) worked in a vocational program. Their experience with sexually active women with ID ranged from 1.5 to 34.5 years (mean 11.41, s.d. 8.88). They averaged 7.33 sexually active women on their caseload (range 1 to 20).

Procedures—Professional participants were recruited via flyers sent to organizations serving people with ID. Professionals either emailed or called to get a full explanation of the evaluation. After the verbal explanation, potential participants were mailed a written informed consent and a demographics form with a self-addressed stamped envelope to facilitate return. Once the informed consent and demographics form were returned, participants were considered officially enrolled and mailed a payment of \$20.00. We sent participants a program satisfaction survey and a copy of the CBIM HIV program. Users were instructed to complete the program satisfaction survey after they reviewed the program. After completion and return of the evaluation materials, participants were paid an additional \$50.

Measures—Professional participants completed a demographics questionnaire and program satisfaction survey. The demographics instrument consisted of questions pertaining to gender, ethnicity, race, primary work area, years of experience, and current caseload of sexually active women. In addition, we asked how concerned the women on their caseload were regarding AIDS, how concerned the professionals were about the possibility of clients

contracting AIDS, and how important they felt AIDS prevention education is for the women they serve. The program satisfaction survey consisted of 50 questions in both quantitative and qualitative formats. Questions covered ease of use of the program, and five areas of user satisfaction: stimulation, comprehension, relevance, persuasiveness, and usability.

Results

On the demographics questionnaire 65% of professionals said their sexually active clients were “not at all” or “very little” concerned about HIV/AIDS (24% somewhat, 12% very much). However, all of these professionals were either “very” or “somewhat” concerned about their clients contracting HIV/AIDS (71% somewhat, 29% very). Ninety-four percent stated that AIDS education was very important for their clients (6% somewhat).

In terms of the stimulation questions, 78% said they liked the program very much while 22% said they liked it more than they disliked it. Typical comments made concerning an overall impression of the program were: *“Very easy to understand and follow, very good program,” “I am so impressed! What a valuable tool,” and “I liked the program more than I thought I would. I thought the information was clear, well organized, and easy to understand without talking down to the audience”*. Seventy-two percent believed that most of the women they serve would like the program. Eight-three percent of the participants said that the program would very much grab the interest of their clients. Eighty-eight percent of respondents said the information in the program would be comprehensible to their clients.

The questions related to “relevance” involved a series of queries pertaining to the actors used in the program, the extent to which clients might identify with the actors, and whether providers would recommend the program to other providers. Eight-two percent said the women in the program seemed real and 65% thought they sounded very natural. Fifty-six percent thought their clients would “very much” identify with the women in the program and 44% reported that “somewhat” identify. The majority (89%) of respondents said the language was appropriate and 94% did not believe the program was too graphic or explicit. All professional reviewers would use the program with their clients (78% “very likely” 22% “somewhat likely”), and almost all (83%) said they would definitely recommend the program to other providers (17% “probably would”).

All professionals believed that women who used the program would be “very much” (56%) or “somewhat” (44%) motivated to use condoms. They all also believed the program would “very much” (39%) or “somewhat” (61%) motivate their clients to get tested for HIV.

Program usability was rated very highly by providers. For example, 94% said the pacing of the program was “just about right”. All thought the program addressed important issues, and 89% thought that HIV/AIDS education was “very important” for their clients (11% “somewhat important”). When asked for their final thoughts, typical comments were: *“Great program,” “Excellent program,” “Overall, I really felt good about this program and I would like to know how we can get a copy of the final version! Thank you!”*

Discussion

Results from the evaluation of the program by women with ID indicate that the program was effective in increasing HIV/AIDS knowledge, condom application skills, behavioral skills related to HIV avoidance, and intention to use condoms. In light of the relatively small sample size, coupled with the short duration of the intervention, the effect size estimates indicate that this study has both statistical and practical significance (Thompson, 2002). Findings from the evaluation of the program by service providers were equally robust. Specifically, it was encouraging that 88% of service providers believed that program content

would be comprehensible to their clients. This is important because there are few existing health promotion programs designed for this population (Shogren et al., 2006), and our study demonstrates that both HIV/AIDS knowledge and skills can be taught via interactive technology, which does not require high literacy levels.

We assert that the A-CASI method of instruction is effective and can be used to teach highly sensitive content (de Leeuw et al., 2003) to this population. Since the CBIM program is not dependent on staff for instructional delivery, it is a highly efficient teaching tool. Furthermore the use of CBIM is an efficacious means to provide behavioral health content, compensating for the dearth of available health promotion materials for people with ID. As such, it has a potential for broad distribution and implementation by medical practitioners, and public health offices.

People with ID are part of our society, yet they continue to be overlooked, particularly in the area of health promotion. People with ID state that they are excluded from prevention materials and public campaigns to promote wellness (U.S. Public Health Service, 2002). People with ID are very capable of using computer technology despite the continued beliefs of many professionals in the field. The inadequacy of computer infrastructure for people with ID in agencies that provide services to people with ID is negligent, preventing a highly efficacious means of instruction from being available to people with ID. As technology moves forward, there is a need for improved technology practices for people with ID. Education beyond vocational and residential training is critical if we are to help people with ID live full, productive, healthy, and empowered lives.

Limitations

The limitations of this study include our within-subjects design, and failure to assess knowledge and skill maintenance. In particular, we cannot ascertain the extent to which research participants' condom application skills were maintained over time. Clearly, the use of a randomized controlled trial would have improved our ability to make causal statements about the effects of the intervention.

Future directions

There is a scarcity of data related to the HIV/AIDS status of women with ID, in fact, an overall lack of health surveillance data to identify the specific needs of women with ID. The need exists for research looking into the health status of women with ID, particularly given that many women with an ID are living independently, with little to no support services. As a society, we have let go of people with ID since the deinstitutionalization movement of the 70's. Given full rights to citizenship, this group has been absorbed into the fabric of society, however they remain disenfranchised, they experience health disparities, and they scrape by in low socioeconomic circumstances. Special tools need to be developed in order to address the health disparities experienced by people with ID. Future research should move away from the theoretical, and jump into the application of current knowledge to address real-world health concerns of people with ID

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Figure 1.
Pretest Instructional Screen

Figure 2.
Likert-type Video Response Options

Table 1

Interview Pretest and Posttest

Score	Pretest		Posttest		r
	Mean	s.d.	Mean	s.d.	
HIV knowledge	1.4	.97	2.1	1.39*	.48
Identification of high-risk fluids	1.6	1.7	1.8	.50	
Ways to get HIV	1.32	1.0	2.9	1.6***	.72
HIV-safe practice	4.5	2.3	6.6	1.2***	.71
Safer-sex knowledge	4.2	1.7	5.2	1.8*	.46
Beliefs about condom use	1.8	1.0	2.9	.76***	.64
Where to get HIV tests	1.7	.94	2.5	1.23**	.57
Condom application	2.24	1.6	3.2	2.15*	.44
Condom responsibility	16%		40%+		

+ = $p < .10$

* = $p < .05$

** = $p < .01$

*** = $p < .000$

Table 2

A-CASI Pretest and Posttest

Score	Pretest		Posttest		r
	Mean	s.d.	Mean	s.d.	
Facts	4.7	2.1	6.0	1.9**	.45
Worry	2.2	.83	1.9	.87a	.20
Vignette 1	2.0	.96	2.65	.71**	.53
Vignette 2	2.8	1.08	3.34	.88a	
					Φ
Risk Perception	36%		46%**		.46
Intention to use condoms	75%		95%*		.73

+ =p<.10
* =p<.05
** =p<.01
*** =p<.000