

## Counselors' Knowledge about HIV Transmission and Prevention

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# Counselors' Knowledge about HIV Transmission and Prevention

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This article presents the results of an online survey that explored 80 counselors' knowledge of Human Immunodeficiency Virus (HIV) transmission, HIV prevention strategies, related factors, and where counselors obtained their knowledge. Results show that approximately 90% of counselors correctly identified true and false statements about HIV transmission, and 68% of counselors correctly identified facts about HIV prevention strategies, even though 64% reported receiving no education regarding HIV/AIDS in their graduate counseling programs. Implications for counselor training and professional development are discussed.

*Keywords:* counselors' knowledge, HIV transmission, HIV prevention

## Introduction

In the early 1980s, when Human Immunodeficiency Virus (HIV) was first recognized, society quickly stigmatized the diagnosis to a specific population, namely gay men (Kinnier, 1986), and was originally named gay-related immune deficiency (Fee & Krieger, 1993; J. Joe, Heard, & Yurcisin, 2018). Since the 1980s, the medical field has made significant advancements in understanding the transmission and prevention of HIV and Acquired Immune Deficiency Syndrome (AIDS). The prevention methods addressed in this study are pre-exposure prophylaxis (PrEP), post-exposure prophylaxis (PEP), and treatment as prevention (TasP), each of which have implications for the counseling profession (J. R. Joe, 2018; J. R. Joe, Heard, & Yurcisin, 2017; Rose, Sullivan, Hairston, Laux, & Pawelczak, 2015).

The Centers for Disease Control and Prevention (CDC) reported that an estimated 1.1 million U.S. citizens live with HIV (2019). Moreover, the CDC estimated that roughly 162,500 (14%) of those living with HIV are unaware of their diagnosis. In 2017, the CDC (2019) found that the rate of HIV diagnoses among Black men and women (16,694 cases) was significantly higher than the number of White diagnoses (10,049 cases), Hispanic diagnoses (9,908 cases), and Asian diagnoses (945 cases). Even still, the rate of new diagnoses of HIV has declined in the last decade (Centers for Disease Control and Prevention, 2019); however, the number of U.S. citizens who are either living with HIV or are unaware of their diagnosis could impact the physical, mental, and emotional health of those diagnosed, their families, and their personal and professional relationships.

People living with HIV or AIDS (PLWHA) benefit from the support of family, friends, and professionals physically, mentally, and emotionally (Kinnier, 1986; McDowell &

Serovich, 2007; Substance Abuse and Mental Health Services Administration, 2012). Although there are obvious medical implications associated with an HIV or AIDS diagnosis, receiving a diagnosis can also create serious mental health concerns for PLWHA including depression, stress, and trauma (Leserman, 2008), anxiety and substance use disorders (Pence, Miller, Whetten, Eron, & Gaynes, 2006), posttraumatic stress and death anxiety (Safren, Gershuny, & Hendriksen, 2003), existential and spiritual issues (Holt, Houg, & Romano, 1999), and suicidal ideation (Substance Abuse and Mental Health Services Administration, 2012). Due to the mental health issues that a PLWHA can experience, it is likely that, at some point in their careers, counselors will provide services to either a PLWHA or the PLWHA's family. Moreover, the stigma associated with HIV/AIDS means that services should be provided in an ethical and culturally appropriate manner. To ensure counselors are ethically and culturally competent, past research has recommended that counselor training programs incorporate HIV/AIDS training into their curriculum (J. R. Joe et al., 2017; Hunt, 1996; Werth & Carney, 1994); otherwise, coun-

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selors will enter the profession with limited, biased, or inaccurate knowledge about HIV (Carney & Cobia, 2003; Rose et al., 2015). Accordingly, it is necessary that counselors understand the transmission and prevention of HIV/AIDS in order to work with clients and reduce the risk and stigma associated with an HIV-positive diagnosis. Inaccurate knowledge could potentially harm and further stigmatize clients who are diagnosed with HIV or AIDS.

## Literature Review

### HIV Transmission

Accurate knowledge about HIV transmission is critical for counselors to assess, understand, support, and provide ethical counseling to clients: within the U.S. there are pervasive myths about HIV, including the false belief that HIV can be transmitted by spitting or kissing (Kaiser Family Foundation, 2017). Inaccurate knowledge about HIV transmission perpetuates and reinforces the stigma associated with HIV/AIDS, increasing the social challenges of living with a diagnosis of HIV or AIDS. This lack of accurate knowledge could have a significant impact on the physical, mental, and emotional wellbeing of clients (J. R. Joe, 2018); furthermore, it could very well impact the counseling process during the assessment or provision of psychoeducation, and the examination of biases and risk-taking behaviors with clients, inhibiting the counselors ability to provide ethical counseling.

The American Counseling Association (ACA, 2014) includes an ethical guideline that highlights the roles and exceptions to confidentiality when counseling clients with contagious, life-threatening diseases (Standard B.2.C). The CDC (2018) noted that 19 states have laws that require a person who is diagnosed with HIV to disclose that information to sexual partners. Joe (2018) discussed specific components of ethical decisions related to counseling PLWHA, including confidentiality, determining serious and foreseeable risks for third parties, and competence; thus, accurate knowledge about the transmission of HIV is crucial because a counselor who is aware of the ethical standard set by the ACA but does not have accurate knowledge about HIV transmission might make an unethical decision and break a client's confidentiality or create further harm by not accurately assessing foreseeable risk to potential third parties.

Rose et al. (2015) assessed counselors' knowledge about HIV transmission in Ohio and found that counselors from this state had statistically significantly higher levels of knowledge than the original three samples used by Carey and Shroeder (2002) in the development of the HIV-Knowledge Questionnaire-18 (HIV-KQ-18), which was used in this study. Furthermore, Rose et al. (2015) reported a statistically significant negative relationship between age and HIV knowledge, meaning as the age of counselors went up, their level of HIV knowledge related to transmission tended

to go down. Joe, Heard, and Yurcisin (J. R. Joe et al., 2017) explored the factors that counselor trainees perceived as significant in addressing HIV/AIDS concerns during a counseling session. Master's level students reported that a lack of knowledge about the biological aspects of HIV/AIDS transmission would be most likely to affect counselor comfort while counseling PLWHA. Although half of counselor training programs provide some basic level of HIV/AIDS training (e.g., basic education, risk behaviors, counseling PLWHA), with 25% reporting an entire course or large part of a course devoted to information and training on HIV/AIDS, and another 25% offering a workshop, 50% of counselor training programs offer no formal training or education related to HIV/AIDS (Hunt, 1996); furthermore, Hunt (1996) found that only 1% of counselor education master's theses were written on topics related to HIV/AIDS, less than 1% of doctoral dissertations were related to HIV/AIDS, and only 3% of faculty were involved in HIV/AIDS research.

Regarding formal training, Britton, Rak, Cimini, and Shepherd (1999) found that an intensive training model had positive effects on counselors' knowledge and attitudes when counseling clients diagnosed with HIV or AIDS. Carney and Cobia (2003) noted that counseling specializations might have additional implications to consider; for example, they found that school counselors had specific concerns related to trends of HIV diagnosis among children and adolescents, school policies and practices, and policies of disclosure and universal precautions.

Gaining knowledge about HIV transmission, including advances in prevention, diagnosis, and treatment, is important for counselors, because it assists in the development of skills, self-awareness of attitudes, and provision of competent counseling services to clients (Hunt, 1996; Rose et al., 2015). Counselors who have accurate knowledge about HIV transmission are empowered to assess risk factors with clients, to reduce stigma and advocate testing and treatment, to educate and promote prevention methods, and to provide ethical and competent counseling services for individuals, families, and groups who are impacted by an HIV/AIDS diagnosis.

### HIV Prevention

The counseling profession conceptualizes client experiences from a growth, wellness, and development perspective across the lifespan, and prevention is considered the bedrock of the counseling field (American Counseling Association, 2014; Myers, 1992). Furthermore, the ACA Code of Ethics (2014) and Albee (2000) both advocate that primary prevention in mental health needs to reduce the number of new cases of a disorder. Prevention is a critical component to reducing transmission of HIV (Centers for Disease Control and Prevention, 2019), and counselors have the ability to play a vital role in risk assessment and encouraging HIV testing. Cur-

rently, there is no current research that assesses the level of knowledge about HIV prevention strategies that counselors possess.

The CDC (2019) noted several strategies that help to prevent or reduce the risk of HIV transmission: abstinence, limiting the number of sexual partners, not sharing needles, and using condoms correctly with each sexual experience. Beyond these strategies, the medical field developed newer HIV prevention strategies, including PrEP, PEP, and TasP. PrEP has been described as a prevention strategy for someone who is HIV-negative but may be at high risk for HIV transmission and includes taking an oral antiviral medication such as Truvada (tenofovir and emtricitabine) (Centers for Disease Control and Prevention, 2018); if taken daily, PrEP has been shown to reduce the risk of HIV transmission by more than 90%. PEP has been described as a prevention strategy for individuals who may have been exposed to HIV. Through PEP, individuals can reduce their risk of HIV transmission by taking Truvada and Isentress (raltegravir) no later than 72 hours after potential exposure (Centers for Disease Control and Prevention, 2018). TasP refers to PLWHA who take their HIV medication(s) as prescribed, which reduces their viral load (the amount of HIV in the body) to levels that are not detectable on HIV tests, reducing the risk of transmission.

Knowledge about HIV encompasses not only transmission and prevention, but also awareness of the biological, psychological and psychosocial implications, the different types of HIV tests, methods of treatment adherence, medication side effects, and much more. While knowledge about HIV encompasses many different aspects, this study focuses on counselors' knowledge of the aforementioned transmission and prevention strategies. Previous counseling research on knowledge about HIV indicated that a lack of knowledge was the most cited influence on counselors-in-training's perceptions about counseling a PLWHA (J. R. Joe et al., 2017), that approximately half of counseling programs offer no training or education on topics related to HIV (Hunt, 1996), and that there is no research about counselors' knowledge pertaining to HIV prevention strategies. This study explored counselors' level of knowledge related to HIV transmission and prevention, asked where counselors obtain this knowledge, and intended to provide information about how counseling programs, and the profession as a whole, understand and learn about HIV. As such, this study asked the following research questions:

1. How much do counselors know about HIV transmission?
2. How much do counselor know about HIV prevention?
3. What factors predict knowledge of HIV transmission and prevention?
4. Where do counselors obtain knowledge about HIV?

## Methods

### Participants

After obtaining institutional review board (IRB) approval and permission from the listserv administrator, participants were recruited through a series of three email solicitations to gather data. An anonymous survey was posted to a counselor education and supervision professional listserv with approximately 3,400 members to obtain a sample that included counseling students, current counselors, and counselor educators and supervisors ( $n = 80$ ). Although counselors come from diverse undergraduate backgrounds, practitioners and counselor supervisors and educators shared a common professional identity.

A variety of predictor variables were collected in this study, including gender identity, age, race/ethnicity, sexual orientation, level of education, counseling concentration, region, geographical setting, and whether or not participants personally knew someone who was either living with HIV/AIDS or had died from it. Of the 80 participants, 57 participants (71%) identified as female, 20 participants (25%) identified as male, and 3 participants (4%) identified as transgender. The average age of participants was 38.76 years, ranging from 24-74 years old. Out of those who identified, 50 participants (63%) identified as White/Caucasian, 17 participants (21%) identified as Black/African American, 4 participants (5%) identified as Asian/Pacific Islander, 4 participants (5%) identified as Hispanic/Latino, and 5 participants (6%) identified as Multiple Heritage. Fifty-four participants (68%) identified as heterosexual, 12 participants (15%) identified as gay men, 5 participants (6%) identified as bisexual females, 0 participants identified as lesbian, and 9 participants (11%) identified as queer.

Forty (50%) participants reported that their highest degree was a doctorate degree, 33 participants (41.25%) reported that their highest degree was a master's degree, and 7 participants (8.75%) reported that their highest degree was a bachelor's degree. Fifty respondents (63%) identified their concentration as a counselor education or supervisor, 20 respondents (25%) identified clinical mental health counseling, 5 respondents (6%) identified school counseling, 2 respondents (3%) identified marriage and family counseling, and 2 respondents (3%) identified addiction counseling.

More than half of the responses (59%) were from the Southern region, 15 responses (19%) were from the North Atlantic region, 12 responses (15%) were from the North Central region, 3 responses (4%) were from the Rocky Mountain region, and 3 responses (4%) were from the Western region. Fifteen participants (19%) described their geographic setting as rural, 34 participants (43%) described their setting as suburban, and 31 participants (39%) described their setting as urban. Almost three-quarters of participants (73%) reported personally knowing who was either living

with HIV/AIDS or had died from it, 23 participants (29%) reported not knowing someone who was either living with HIV/AIDS or had died from it, and 5 participants (6%) did not know if they knew someone who was either living with HIV/AIDS or had died from it.

### Survey

The survey used in this study consisted of the HIV-KQ-18 (Carey & Schroder, 2002) which assessed knowledge of HIV transmission, five questions adapted from the National Survey of Young Adults on HIV/AIDS (Kaiser Family Foundation, 2017) that assessed knowledge of HIV prevention methods, and seven questions adapted from the National Survey of Young Adults on HIV/AIDS (Kaiser Family Foundation, 2017) that assessed where counselors obtained knowledge about HIV transmission and prevention. Participants were also given a demographic questionnaire (described above). The information below provides more detail about the survey.

**Transmission knowledge.** The HIV-KQ-18 instrument contains 18 force-choice statements related to knowledge of transmission of HIV. It asks participants to read statements and answer whether the prompt was “True” or “False.” Participants were instructed not to guess, but to instead select “I don’t know.” The range for the instrument is 0 (answering all questions wrong or as “I don’t know”) to 18 (answering all the questions correctly), and converted into percentage score representing accurate knowledge.

Carey and Schroder (2002) identified a gap in the literature about HIV and AIDS assessments and created a brief measure of knowledge related to HIV transmission: the HIV-KQ-18. The HIV-KQ-18 is a brief version of the original 45-item HIV Knowledge Questionnaire (HIV-KQ; Carey, Morrison-Beedy, & Johnson, 1997). In the development of the HIV-KQ-18, Carey and Schroder (2002) collaborated with community health and mental health clinics to administer and test the psychometric properties of the scale with 1,100 participants from three samples: the Women’s Health Project-1 (n = 279), the Women’s Health Project-2 (n = 357), and the Health Improvement Project (n = 464). Participants included low-income women and men, and women who received outpatient psychiatric treatment. Psychometric properties indicated that after removing 27 items from the HIV-KQ, the HIV-KQ-18 maintained good internal consistencies (alphas ranging from .75-.89), was stable (coefficients between .76-.94), and highly correlated to the 45-item HIV-KQ ( $r = .93 - .97$ ). After item analysis and validity testing, Carey and Schroder (2002) reported HIV-KQ-18 provided a psychometrically sound tool to assess HIV knowledge.

We consulted the work of Joe (2018) and Joe, Heard, and Yurcisin (2018) to determine if the statements presented in the measure were consistent with accurate knowledge of HIV transmission. The HIV-KQ-18 statements appeared to follow

the recommendations made by those authors and assessed for known routes of transmission. However, the internal consistency of the HIV-KQ-18 was found to have a lower Cronbach’s alpha in this study (18 items;  $\alpha = .45$ ) than in the original study (18 items;  $\alpha = .75-.89$ ). The findings from this instrument should be considered with caution and for future research since it is below the .70 threshold (Crocker & Algina, 2006).

**Prevention knowledge.** The Kaiser Family Foundation (2017) surveyed 1,749 young adults ranging in age from 18-30 years old to gain insight into the knowledge and attitudes that the average American has about HIV. Included in the survey were items that described facts regarding HIV prevention. Five of these items were adapted and included in this study to assess counselor’s knowledge prevention. The items were as follows: (a) is there a pill that people who do not have HIV can take to protect themselves from getting HIV; (b) if someone who has potentially been exposed to HIV and takes medication(s) within 72 hours, it can help prevent HIV infection; (c) if someone who has HIV takes their medication(s) as prescribed, does this reduce the risk of passing HIV to their sexual partners; (d) with ongoing antiretroviral treatment, some people with HIV can become undetectable of the virus; (e) PrEP is effective in protecting people who take it from getting HIV.

These 5 items addressed overall knowledge of prevention and each item addressed the specific HIV interventions PrEP, PEP, and TasP. For each item, participants were asked to read the statement and respond if it is “True,” “False,” or they were instructed to answer “I don’t know” if they were unsure, identical to the HIV-KQ-18 response selection. The highest score an individual could receive for the adapted Kaiser Family Foundation (AKFF) questions was 5, meaning that they answered each question correctly. Zero was the lowest score an individual could receive, meaning that either they answered each question incorrectly or they did not know the answer. The internal consistency of the current sample on the AKFF was .77.

**Where knowledge was obtained.** To assess where counselors obtained their knowledge about HIV transmission and prevention, a survey item was adapted from the National Survey of Young Adults on HIV/AIDS (Kaiser Family Foundation, 2017) and asked: thinking about what you know about HIV and prevention, indicate for each area if you received “a lot (3)”, “some (2)”, “a little (1)”, or “none (0)” related to (a) school (graduate counseling program); (b) online research; (c) doctors or other medical professionals; (d) social media; (e) TV, radio, or print media; (f) family; and (g) friends.

## Results

### HIV Transmission Knowledge

The sample's mean on the HIV-KQ-18 was 16.26 out of 18 (SD = 1.58). Next, the mean scores were translated into a percentage score. The sample's average percentage score was 90.33% (SD = 8.78). An independent samples t-test of HIV-KQ-18 scores determined that there was no significant difference in the scores between counselors who know someone diagnosed with HIV/AIDS (M = 16.20, SD = 1.63) and counselors who do not know or are uncertain if someone they know is diagnosed with HIV/AIDS (M = 16.38, SD = 14.49),  $t(78) = -0.477$ ,  $p = 0.673$ .

A one-way analysis of variance (ANOVA) determined that there was a statistically significant difference between the mean scores on the HIV-KQ-18 for the three educational levels,  $F(2,77) = 6.037$ ,  $p = 0.004$ . A Tukey HSD post-hoc analysis indicated that the mean score for participants with a doctorate degree (M = 16.83, SD = 1.06) was significantly different from the mean scores of participants with a master's degree (M = 15.79, SD = 1.73) and participants with a bachelor's degree (M = 15.29, SD = 2.29).

An ANOVA determined that there was no significant difference of mean scores on the HIV-KQ-18 level for the three gender groups,  $F(2,77) = 2.481$ ,  $p = 0.09$ . A multiple linear regression test determined the relationship between the eight dummy coded predictor variables and HIV transmission knowledge from mean scores on the HIV-HQ-18 and a demographic questionnaire. A stepwise regression identified the model of best fit. The correlation variables and descriptions statistics are summarized in Table 1.

Table 1  
Summary of Stepwise Regression Analysis for Variables Predicting HIV Transmission Knowledge

Variable	B	SE B	$\beta$	t
Constant	17.62	.54		32.31***
Education	-.738	.24	-.30	-3.07**
Ethnicity	-.493	.15	-.33	-3.36**
Sexual Orientation	.380	.15	.25	2.51*

Note. n = 80; \* =  $p < .05$ ; \*\* =  $p < .01$ ; \*\*\* =  $p < .001$

The results from these analyses suggested that a three-predictor model of ethnicity, sexual orientation, and highest educational level accounted for 30.7% ( $R^2 = 0.307$ ) of the total variance of HIV transmission knowledge,  $F(3, 73) = 10.76$ ,  $p = 0.00$ , 95%, CI [16.53, 18.70]. The low predictive value could be explained by our small sample size (Wampold & Freund, 1987). Wampold and Freund (1987) recommend a minimum of 40 responses per predictor variable to increase the predictive value of a model.

### HIV Prevention Knowledge

The sample's mean for the AKFF questions was 3.4 out of 5 (SD = 1.66), and, the sample's overall percentage of correct answer was 68% (SD = 33.16). Two items on the survey directly assessed counselor knowledge of PrEP. The sample's average for these two items was 67.5% (SD = 44.37). One item on the survey asked counselors about PEP, and the sample's average for this item was 52.5% (SD = 50.25). Lastly, two of the adapted items on the survey assessed counselor knowledge of TasP. The sample's average correct answer for these two items was 74.4% (SD = 35.57).

An independent samples t-test determined that there was a significant difference in the scores between counselors who know someone diagnosed with HIV/AIDS (M = 3.80, SD = 1.43) and counselors who do not know or are uncertain if someone they know is diagnosed with HIV/AIDS (M = 2.58, SD = 1.58) on the AKFF,  $t(78) = 3.26$ ,  $p = 0.039$ . An ANOVA determined that there was no statistically significant difference between the mean scores for the three educational levels,  $F(2,77) = 0.038$ ,  $p = 0.96$ .

An ANOVA determined that there was a statistically significant difference of mean scores for the three gender groups,  $F(2,77) = 7.564$ ,  $p = 0.001$ . A Tukey HSD post-hoc analysis indicated that the mean score for females (M = 2.98, SD = 1.695) was significantly different from the mean scores for males (M = 4.35, SD = 1.04). However, the mean score for participants who identified as transgender (M = 5.00, SD = 0.00) did not significantly differ from females (M = 2.98, SD = 1.695) or males (M = 4.35, SD = 1.04). These findings suggest, with caution due to sample size, that males seem to know more than females about HIV prevention strategies. A multiple linear regression test determined the relationship between eight dummy coded predictors variables and HIV prevention knowledge based on the scores from the AFKK questions and a demographic questionnaire. A stepwise regression identified the model of best fit. The correlation variables and descriptions statistics are summarized in Table 2.

Table 2  
Summary of Stepwise Regression Analysis for Variables Predicting HIV Prevention Knowledge

Variable	B	SE B	$\beta$	t
Constant	3.33	.68		4.87**
Gender	1.08	.68	.36	-3.51*
Knowing someone diagnosed with HIV/AIDS	-1.01	.36	-.28	-2.76*

Note. n = 80; \* =  $p < .01$ ; \*\* =  $p < .001$

The results from this analysis suggested that a two-predictor model of gender and knowing someone diagnosed with HIV/AIDS accounted for 23.1% ( $R^2 = 0.231$ ) of the total variance of HIV prevention knowledge,  $F(2, 74) = 11.14$ ,

$p = 0.00$ , 95% CI [1.97, 4.70].

### Obtaining Knowledge about HIV and Prevention

To understand where counselors obtained their knowledge about HIV transmission and prevention, a survey item adapted from the National Survey of Young Adults on HIV/AIDS (Kaiser Family Foundation, 2017) asked: thinking about what you know about HIV and prevention, indicate for each area (graduate counseling programs, online research, doctors or other medical professionals, social media, TV, radio, or print media, family, and friends) if you received “a lot,” “some,” “a little,” or “none.” In this sample (see Figure 1), 51 participants (64%) reported obtaining no knowledge about HIV and prevention from their graduate counseling programs. Thirty-seven participants (46%) reported obtaining some knowledge about HIV and prevention from online research. Twenty-eight participants (35%) reported obtaining some knowledge about HIV and prevention from doctors or other medical professionals. Forty-four participants (54%) reported obtaining a little or some knowledge about HIV and prevention via social media. Thirty-two participants (40%) reported obtaining a little knowledge about HIV and prevention through TV, radio, or print media. Fifty-three participants (66%) reported obtaining no knowledge about HIV and prevention from family. Finally, 27 participants (34%) reported obtaining some knowledge about HIV and prevention from friends.

### Discussion

The findings of this study have various training and educational implications for the counseling profession. Generally, the results suggested that as counselors' educational attainment increased, so did their knowledge about HIV transmission. Counselors' average knowledge of HIV transmission was 90.33% correct (16.26), meaning that counselors have a good amount of knowledge related to HIV. This finding is similar to the work by Rose et al. (2015) where participants from a state level professional counseling conference were 91.51% correct (16.47) in their HIV transmission knowledge. Between 2015 and 2019, it appears that the average of counselors' knowledge, based on the findings of Rose et al. and the findings of this study, has remained fairly stable, but has grown slightly less correct.

Generally, this could indicate that counselors' knowledge has slightly decreased, or that there are other factors within the sample that contributed to this decrease. In their initial study, Rose et al. (2015) found a negative relationship between a counselor's age and their HIV/AIDS knowledge; this study found that higher levels of educational attainment (i.e., older) increased knowledge about HIV transmission. This difference could be due to the fact that even though age and educational attainment are likely related, they are not the same.

Additionally, the results of this study found that participant ethnicity, sexual orientation, and level of educational attainment were significant predictors of counselors' HIV transmission knowledge, suggesting that these variables were important in gaining knowledge about HIV transmission. This is especially important when considering the disproportionate number of HIV cases in the gay community, bisexual community, and communities of color (Centers for Disease Control and Prevention, 2019). Helping counselors gain knowledge about HIV transmission and prevention is critical for ethical and competent practice: training programs developed or altered by this study could impact counselor knowledge and attitudes related to HIV/AIDS by offering intensive HIV/AIDS education in the classroom (Britton et al., 1999). The findings of this study, Carney and Cobia (2003), and Rose et al. (2015) suggested that, overall, counselors have an adequate knowledge about HIV transmission, but continued assessment in the areas of HIV related knowledge are necessary, as understanding of treatment and prevention change.

Prevention is a cornerstone of the counseling profession (American Counseling Association, 2014; Myers, 1992), and the HIV prevention strategies described above are important for counselors to know in order to offer ethical and competent services in a variety of settings. Five items asked participants about current HIV prevention strategies. Sixty-nine percent of counselors demonstrated accurate knowledge about PrEP, 53% about PEP, and 74% about TasP; however, because the items asked about the strategy itself and not the terminology, counselors may not possess the language to discuss these strategies with clients. Similarly, since counselors in this study knew less about HIV prevention than they did HIV transmission, prevention information could be incorporated into various courses, such as human sexuality, couples counseling, or multicultural counseling. Furthermore, seeing as counselors knew the least about PEP, and considering the variety of settings that counselors practice, it seems this strategy in particular would be an important prevention method to include in classroom discussions about trauma and sexual assault or life span development and childbirth. Additionally, this study found that knowing a PLWHA increased counselors' knowledge of prevention. This finding suggests that a counselor who knows a PLWHA are likely learn different aspects of HIV (Veinot & Harris, 2011). Keeping this in mind, training programs could also offer a colloquium and work to incorporate basic education about HIV transmission, prevention, and counseling PLWHA into their courses (Hunt, 1996).

Even though Hunt's (1996) study surveyed program chairs, and this study asked individual participants to self-report about HIV training they received in graduate counseling programs, both found a startling number of programs incorporate no HIV training into their counseling program,

suggesting that the counseling profession is inadequately addressing issues of HIV in the classroom. Counselor training programs and instructors should work to identify ways of increasing the HIV related content of their curriculum and courses, while considering the counseling implications of counseling specializations (Carney & Cobia, 2003). Programs can consider including units or class periods that focus on HIV as a special topic, incorporating information about transmission, prevention, biological effects, psychological effects, psychosocial effects, and legal and ethical issues. Class assignments could ask students to view HIV related information from reputable sites, such as thebody.com or CDC.gov, and reflect on their learning; similarly, instructors could include HIV themed case studies (see Remley & Hirlivy, 2005; Wengerd, Hill, & Konieczka, 2014) to frame class discussions about ethical decision making, how best to counsel PLWHA, or even HIV prevention information. Furthermore, counselor educators could produce various HIV related instructional materials and incorporate an HIV focused community-based learning into a course to engage students in learning about HIV transmission, prevention, and the impact a diagnosis has on individuals, families, and communities.

In this study, counselors reported (see Figure 1) receiving the majority of their knowledge about HIV from online research, followed by: doctors and other medical professions; friends; TV, radio, and print media; social media; graduate counseling programs; and family. This pattern suggests that counselor educators could include HIV related information in digital presentations. Furthermore, counselors reported receiving the least about HIV knowledge from family. Joe et al. (2018) found that counseling students noted psychological health, healthcare cost, and stigma as perceived challenges facing families with a PLWHA. Considering all the psychological, social, physical, and adjustment issues that could affect the person and the family of the person diagnosed or living with HIV, it is important that counselor training programs incorporate additional opportunities for learning about HIV, prevention, and practice.

As participants in this study reported receiving most of their knowledge from online research, counseling scholars could benefit from developing HIV related scholarship and conference presentations and supporting ongoing HIV related research. Future research should identify where counselors are researching and receiving their knowledge from. Furthermore, because counselors reported TV, radio, print, and social media as sources of knowledge, counselors and educators could write articles for counseling newsletters in different states and associations or highlight December 1 as World AIDS day on social media accounts to combat stigma and raise awareness.

## Limitations and Conclusions

This study, like all studies, had limitations. This study focused on exploring counselor knowledge about HIV transmission and prevention and learning where counselors received that knowledge. First, participants self-selected into the study, and three-quarters (75%) reported knowing a PLWHA, suggesting a higher level of interest in the topic, which might have inflated average scores for knowledge related to HIV. Second, the sample size was small, and most participants (50%) held a doctoral degree and identified as counselor educators (63%), limiting generalizability. Recommendations for future routes of research include investigation into: (a) counselors' knowledge of the relationship among biases, attitudes, and beliefs specific to HIV transmission and prevention; (b) counseling programs' integration of HIV transmission and prevention into course assignments; (c) counselors' knowledge about HIV transmission and prevention related to practice setting or clinical experiences counseling a client diagnosed with HIV/AIDS; and (d) whether or not different counseling specializations possess different levels of knowledge or practice-related concerns.

Another potential limitation of this study is related to the survey. The internal consistency of the HIV-KQ-18 (Carey & Schroder, 2002) was low and certain statements may reinforce stigma and stereotypes about HIV. Joe and Parkin (2018) discussed the importance of language in working with PLWHA including: "living with HIV" versus "infected with HIV," "condomless sex" versus "unprotected sex," and "HIV diagnosis or transmission" versus "HIV infections." While Carey and Schroder (2002) reported language such as "vaccine" or "antibiotic" increases the reading level, future researchers could develop a questionnaire about HIV knowledge that is specifically designed for counselors, has higher internal consistency, and includes current language about HIV/AIDS.

Additionally, the limited number of items adapted from the Kaiser Family Foundation survey (2017) could impact the results and understanding of counselor knowledge related to HIV prevention strategies. Furthermore, it is possible that counselors were aware of the prevention strategy but were unfamiliar with the terminology used (i.e. PrEP, PEP, or TasP). The survey items focused on the understanding of the prevention intervention, not the terminology. Further research is needed to understand counselor knowledge about HIV prevention, specifically a measure of bias towards different prevention strategies could provide a description of what types of knowledge are shared when someone knows a PLWHA.

Although there are limitations to this study and various opportunities for future research, the limitations do not detract from the findings of this analysis: (a) counselors have a good amount of knowledge regarding HIV transmission, (b) educational attainment, ethnicity, and sexual orientation

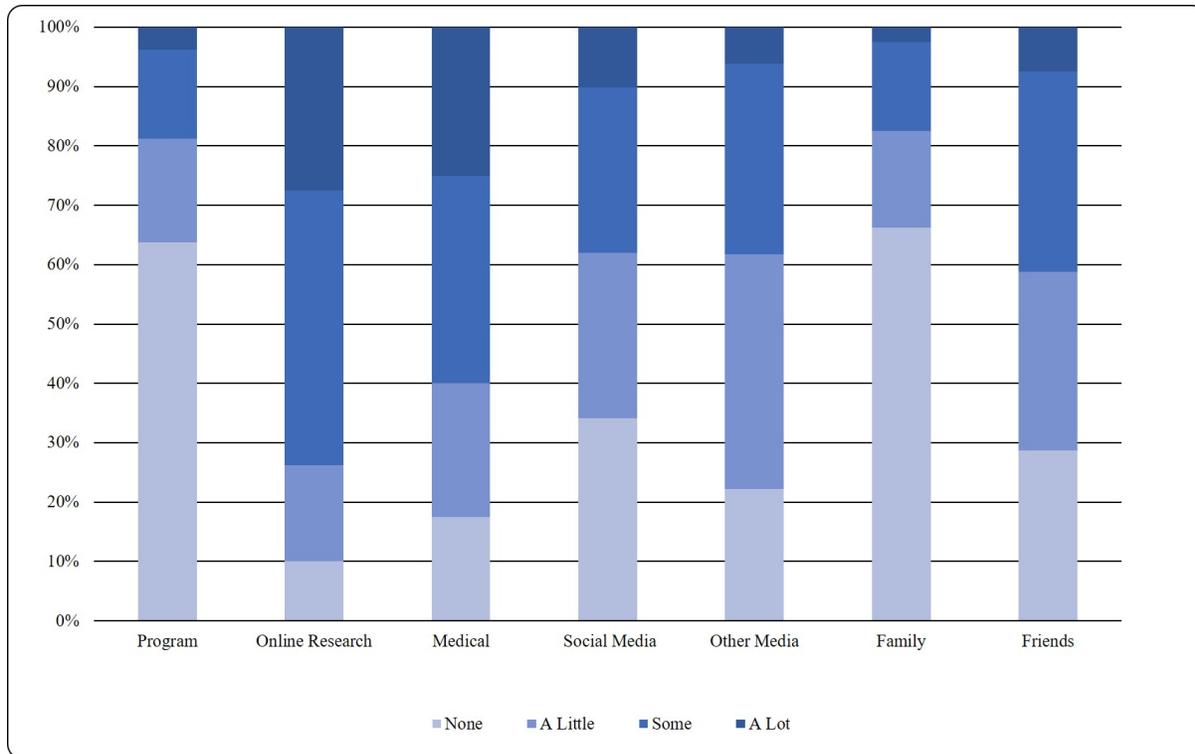


Figure 1. Source of Information

were significant factors in predicting accurate knowledge about HIV transmission, (c) 68% of counselors had accurate knowledge about the HIV prevention strategies PrEP (69% accurate), PEP (53% accurate), and TasP (74% accurate), (d) gender identity of the counselor and whether or not counselors knew someone diagnosed with HIV/AIDS were significant factors in predicting accurate knowledge about HIV prevention, and (e) 64% of counselors reported receiving no training or education about HIV from their graduate training programs. These are important findings for the counseling profession, findings that can provide ways to increase educational opportunities in training courses, professional development, and research and scholarship regarding HIV and AIDS.

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