Dental Students Treating Patients Living with HIV/AIDS: The Influence of Attitudes and HIV Knowledge

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Abstract: As life expectancy for people living with HIV/AIDS (PLWH) increases, these individuals will have greater need for competent and compassionate oral health care. Unfortunately, PLWH face many significant barriers to receiving adequate oral health care, due in part to the fear of being stigmatized or discriminated against by dental care providers (DCPs). Although many studies have documented accounts of prejudice and discrimination toward PLWH in the dental health care setting, few have developed theoretical explanations as to why these attitudes and behaviors persist or how they can be effectively ameliorated. The goal of the current study was to utilize Weiner’s Attribution-Helping model to explain how a patient’s perceived responsibility for contracting HIV might impact DCPs’ attitudes and behavioral responses toward PLWH. Existing research has demonstrated that DCPs’ level of HIV-related knowledge impacts their treatment attitudes and behaviors toward PLWA, but it remains unclear whether the effects of HIV-related knowledge may be masked by the personal attitudes (i.e., perceived patient responsibility for contracting HIV) that DCPs maintain. One hundred and eighteen dental students were recruited from a New England dental program. All participants read one of three brief patient vignettes in which the mode by which an individual contracted HIV was manipulated. Dental students then completed a survey assessing 1) perceptions of the patient’s responsibility for contracting HIV; 2) knowledge of HIV; and 3) treatment attitudes. Results indicated that both knowledge of HIV and attributions of patient responsibility for illness were predictive of negative attitudes toward treatment.

According to the Centers for Disease Control and Prevention (CDC), in 2003 there were an estimated 1,112,000 people living with HIV in the United States. Epidemiological data from the CDC indicate that the incidence of new HIV infections has begun to stabilize in many segments of the population, but that new infections are increasing in several at-risk populations (e.g., African American women and young men who have sex with men). As people are diagnosed with HIV and live longer lives due to the success of antiretroviral therapies, people living with HIV/AIDS (PLWA) will require increasingly competent and compassionate health care, including oral health care.

PLWH are subject to a spectrum of potentially painful and health-compromising oral conditions that are associated with HIV disease and/or HIV treatment. Recent international studies indicate that oral lesions (e.g., oral candidiasis and Kaposi’s sarcoma) occur in as many as 50 to 70 percent of all HIV/AIDS cases. These conditions, which may be preventable and/or treatable with regular dental care, often persist and lead to discomfort, dysfunction, and disability that, if left untreated, can significantly impede quality of life.

Despite the importance of oral health care for PLWA, many of these individuals fail to receive adequate oral health care treatment. Data from the national AIDS Cost and Utilization study indicated that, among 1,424 HIV-positive adults, as few as 9.1 percent received dental treatment during periods when they manifested oral symptoms associated with HIV and/or HIV treatments.

In response to the unmet oral health needs among PLWA, researchers have examined factors associated with the lack of adequate dental care received by PLWA. This research has been fruitful, identifying several important barriers that may contribute to this situation. Structural barriers such as financial hardship, lack of insurance, and
confidentiality, as well as social-psychological factors such as the existence of prejudicial attitudes and discriminatory behaviors among dental care providers (DCPs) have all been demonstrated to be significant barriers to dental care among PLWHA. As background for our study, in the following section we discuss major findings associated with the social-psychological barrier of HIV stigma and discrimination as it applies to DCPs’ treating PLWHA.

DCPs’ Attitudes and Behaviors Toward PLWHA

Research on DCPs’ attitudes and behaviors toward PLWHA has been conducted for over two decades. Published findings indicate that some DCPs manifest a variety of prejudicial attitudes and discriminatory behaviors toward PLWHA. For our study, prejudice was conceptualized as biased attitudes such as dislike, anger, disgust, and contempt felt by DCPs toward a patient because of his or her HIV status. This conceptualization of prejudice is consistent with existing definitions. Furthermore, we conceptualized discriminatory behavior as any actual behavior that is biased toward patients because of their HIV status (e.g., double gloving, declining to treat, and hastened dental care). This conceptualization of DCPs’ discriminatory behavior is consistent with existing studies focused on dentistry and HIV.

Multiple studies have been conducted that examine dentists’ and dental students’ attitudes and behaviors toward PLWHA. Seacat and Inglehart found that dental and dental hygiene students were more likely to desire not to treat PLWHA, especially when the treatment was envisioned to be conducted in their own future practices. Cohen et al. surveyed advanced dental students and found evidence of existing negative attitudes toward PLWHA, though the authors noted these attitudes were not pervasive and appeared to be improved from previous assessments. Carr and Gramling related an incident in which a hygienist quit her job when she found out that a patient was HIV-positive. Rohn et al. reported a case in which a dentist questioned his HIV-positive patient about the status of her illness, focusing on t-cell counts and symptoms. The dentist agreed to treat the patient “for now,” but indicated that she would have to be referred out when she progressed to a “bad” level.

Additional specific accounts of HIV-related dental discrimination were identified by searching public information records via Google on the Internet. In 1999 a dentist in Jamaica Plains, Massachusetts, was sued for violating the Americans with Disabilities Act by denying treatment to HIV-positive patients; the settlement in this discrimination suit required the dentist to pay $60,000 and provide free care for a specified number of HIV-positive patients. Also in 1999, the ACLU sued a New Jersey dental office for refusing to provide routine dental services to an HIV-positive woman. Finally, in 2002 the Lambda Legal Defense & Education Fund sued a New Jersey dentist for refusing emergency dental treatment to a patient because of his HIV status. HIV-related dental discrimination remains a significant issue: the HIV/AIDS Legal Services Alliance has reported that it receives more valid complaints of discrimination by dentists than any other type of HIV/AIDS discrimination including employment and housing.

Information obtained from studies assessing the existence of HIV-related prejudice and discrimination among DCPs is now being used by dental educators to enhance and adapt dental curricula and promote the compassionate and clinically competent care of PLWHA. While these interventions hold promise for improving the treatment of PLWHA by DCPs, little attention has been focused on why some DCPs may maintain prejudicial attitudes and engage in discriminatory behaviors toward PLWHA and how these attitudes and behaviors can be ameliorated.

The goal of our study was to introduce and test a theoretical model that may be useful in helping to identify factors that predict DCPs’ prejudicial attitudes and discriminatory behaviors toward PLWHA. Application of a theoretical model to aid in understanding this process will allow dental researchers and educators to identify core predictors of DCPs’ attitudes and behaviors toward PLWHA. In seeking to integrate existing theory as a potential explanatory mechanism for the demonstrated attitudes and behaviors of DCPs toward PLWHA, we adapted the empirically supported Attribution-Helping model, which has been frequently used and supported within the general population. Though research by Borsum and Gjermo examined the relationship between HIV-related knowledge and treatment attitudes, we believe our study to be the first to apply the Attribution-Helping model to help explain how attributions and HIV-related knowledge may impact DCPs’ treatment attitudes toward PLWHA.
Attributions About PLWHA

Attributions consist of judgments made about the self or others and concern the ways in which people understand the causes of events around them. Weiner et al. noted that attributions begin with a perceiver evaluating an outcome (e.g., HIV diagnosis). Upon being made aware of this outcome, a perceiver often constructs an attribution to aid in explaining the cause of that outcome. Heider and Kelley specified that attributions are typically viewed as either internal (personal responsibility-controllable) or external (environmental responsibility-uncontrollable). The Attribution-Helping model has been frequently used to help explain the relationship between attributions of perceived controllability for a negative event and a perceiver’s responses toward an individual experiencing a negative event. With regard to attributions and PLWHA, Weiner and others have argued that how one is perceived to have contracted HIV, whether through an internal cause (e.g., unprotected sex or injection drug use) or an external cause (e.g., blood transfusion or accidental needle stick), ultimately impacts the way the individual will be evaluated and treated by others. In other words, and in the context of our study, if an individual is perceived as being personally responsible for contracting HIV, then others may see that person in a less positive light and/or even harbor negative attitudes, e.g., “he brought it upon himself.”

Consistent with this assertion, existing research has demonstrated that when a perceiver attributes high amounts of responsibility to PLWHA for contracting HIV, that perceiver will respond with greater negative emotions (e.g., anger) and will be less likely to help the individual in a variety of important life domains. When a perceiver attributes low responsibility to PLWHA for contracting HIV, that perceiver will respond with greater positive emotions (e.g., sympathy) and will be more likely to help the individual.

The integral role attributions play in the formation of perceivers’ attitudes and behaviors toward PLWHA within the general population should also be expected among DCPs. However, this assertion has not been tested. Research conducted by Kuthy et al. and Mulligan et al. (described in more detail below) suggests that initiatives designed to enhance HIV-related knowledge among DCPs result in more positive attitudes and expressions of greater willingness to treat PLWHA. Since the majority of dental education programs now have mandatory components focused on educating students about the treatment of patients with infectious and communicable diseases, we sought to test two hypotheses:

H1: that higher HIV/AIDS-related knowledge would be associated with more positive attitudes toward PLWHA.

H2: that attributions about PLWHA may be more powerful predictors of treatment attitudes than HIV-related knowledge, thus suppressing the benefit of HIV-related knowledge on treatment attitudes.

HIV/AIDS Knowledge

Among student DCPs (dental and dental hygiene), HIV/AIDS-related knowledge has been demonstrated to improve as one progresses through the curriculum, and this improved knowledge has been correlated with improved attitudes toward treating PLWHA. Among community-based DCPs, continuing education interventions such as one conducted by Mulligan et al. demonstrate that providing DCPs with additional information about HIV/AIDS (routes of transmission, transmission risk, universal precautions, etc.) results in significant improvement in their attitudes and behaviors toward PLWHA. Among senior dental students, Kuthy et al. found that knowledge gained through previous experience treating multiple different vulnerable populations, including PLWHA, resulted in improved attitudes and a greater willingness to treat patients from these populations. Our study expands upon the research of Kuthy et al. by examining whether or not the benefits of HIV-related knowledge may be diminished by the personal attributes dental students have about their HIV-positive patients. To the best of our knowledge, no studies exist within the dental literature assessing this relationship.

Methods

Approval for this study was obtained from the Institutional Review Board of the medical center in which the study took place. A total of 118 participants were recruited from a mid-sized New England dental school in four dental courses that were specific to each year in the dental program. All students were eligible to participate. Students were asked if they would be interested in completing an anonymous survey. All were informed that their participation was completely voluntary and that participation would not affect their grade.
At the beginning of the survey, all participants were asked to report their gender and class year. Immediately following the collection of basic demographic information, participants read a brief vignette describing a fictitious individual who had contracted HIV through one of three routes: 1) unprotected heterosexual sex; 2) unprotected homosexual sex; and 3) injection drug use (IDU). The vignettes were manipulated to prime participants to think about a specific way in which the character in their vignette may have contracted HIV. The following is an example of the vignettes used:

John is a single thirty-year-old [heterosexual, homosexual, or injection drug-using] male who has been employed for the last ten years. Recently, John started losing weight, experiencing extreme fatigue, and having night sweats. His symptoms never seemed to go away and only got worse as time went on. John visited his physician and received an HIV antibody test. A week later John’s test result came back, and the physician informed John that he has HIV.

All participants completed a three-item scale assessing the degree to which they felt the person characterized in the vignette had control over, was responsible for, and was to blame for contracting HIV. Item scores ranged from 1 “no control at all” to 10 “complete control” over contracting HIV. A sample item was “How much control do you feel John had over contracting HIV?” These items were adapted from an earlier questionnaire developed by Mantler et al., and the possible range of scores was from 3 to 30, with higher scores representing greater amounts of attributed control/responsibility/blame. The three-item HIV responsibility scale had acceptable internal reliability (α=.80).

Twelve items were used to assess dental students’ personal and professional attitudes about treating PLWHA. Within this scale, we focused on six items that specifically assessed dental students’ personal attitudes about treating PLWHA. A sample item was “I would be completely comfortable implementing procedures with John that have a higher likelihood of aerosol exposure (e.g., using a Cavitron).” Two items were reverse-scored, and all items were scored 1 “strongly disagree” to 4 “strongly agree.” The total score represented the amount of negative attitudes a participant had about treating PLWHA. The remaining five items focused on dental students’ perceptions that PLWHA would be discriminated against generally and by members of the dental community. A sample item was “People with HIV will likely experience some discrimination related to their illness in their lifetime.” The reliability of the personal attitude toward treatment scale used in the current study was acceptable (α=.72).

Dental students’ HIV-related knowledge was assessed with a series of eleven knowledge statements. These statements were based on previous research by Seacat and Inglehart and assessed students’ knowledge about HIV characteristics specifically related to the practice of dentistry. Items included “Hairy leukoplakia is one of the most common oral lesions associated with HIV” and “If a patient is suspected to have HIV, an HIV test can be required prior to providing treatment.” Participants could respond to all items with the options “agree,” “disagree,” and “I don’t know.” Wrong answers and “I don’t know” answers were both counted as incorrect responses. Participants’ total numbers of correct responses were tallied and used for statistical analysis. Modifications to the original scale published in 2003 were made based upon the release of more recent information obtained from a prominent not-for-profit HIV and dentistry information website (www.hivdent.org). Reliability of the HIV knowledge scale was acceptable (α=.72).

Prior to conducting the primary statistical analyses, a series of ANOVAs were conducted to assess the relevance of several proposed confounding variables. The variables that were assessed were participant gender, participant class year, whether a participant knew someone with HIV, and whether a participant had ever knowingly treated someone with HIV. None of the proposed confounding variables were significantly associated with the study variables of interest; thus, these variables were not retained in further analyses. Next, we tested the proposed relationship between patient identity status (heterosexual, homosexual, injection drug user) and participant attributions of patient responsibility using one-way analysis of variance (ANOVA). Finally, to determine whether participant attributions and/or HIV-related knowledge predicted participants’ attitudes about treating PLWHA, we conducted a series of three linear regression analyses, with the attitude toward treatment score as the dependent variable. In the first regression analysis, we tested whether participants’ attributions of responsibility predicted their attitudes about treating PLWHA. In the second regression analysis, we tested whether participants’ levels of HIV-related knowledge predicted their attitudes about
treating PLWHA. In the final regression analysis, we tested participant attributions and HIV-related knowledge as predictors of treatment attitudes to determine whether each predictor remained independently significant. We suspected that participant attributions may impact the relationship between HIV-related knowledge and treatment attitudes, so in the third analysis we expected that the significance of HIV-related knowledge as a predictor of treatment attitudes would be diminished.

Results

The final sample consisted of thirty-six first-year students, thirty-four second-year students, twenty-four third-year students, and twenty-four fourth-year students. At the time of recruitment, 169 students were enrolled in the dental program, so the response rate for the current study was 69.82 percent. There were sixty-five women and fifty-three men reporting. Racial/ethnic identity was not assessed; however, at the time of this study, the racial/ethnic makeup of the program was 72 percent white, 9.1 percent black, 8.5 percent Asian, 4.3 percent Hispanic, and 6.1 percent reporting other racial/ethnic identities.

Overall, the ANOVA testing the impact of patient identity status (heterosexual, homosexual, injection drug user) on participant attributions was found to be significant \(F(2, 118)=8.73; p<.0001; \eta^2=.17\). Post hoc analysis indicated that participants perceived the injection drug using patient to have significantly more responsibility for contracting HIV (\(M=24.00; SD=5.92\)) when compared to the heterosexual (\(M=18.33; SD=6.60\)) and homosexual patients (\(M=18.03; SD=6.03\)). There were no statistically significant differences between participant perceptions of the heterosexual and homosexual patient with regard to control, responsibility, and blame for contracting HIV.

Several significant findings emerged from the planned regression analyses. First, the variable attributions of responsibility were significantly and positively associated with treatment attitudes: as participants attributed greater amounts of responsibility to the person, they also reported greater negative attitudes about treating him or her (see Table 1). Second, the variable HIV-related knowledge was significantly and negatively associated with attitudes toward treatment: as participants scored higher on the knowledge scale, their negative attitudes toward treatment of PLWH decreased (see Table 1). Finally, participant attributions were found to suppress the effect of HIV knowledge on treatment attitudes. In other words, the once statistically significant impact of HIV/AIDS knowledge on treatment attitudes was diminished by including participant attributions as a predictor of treatment attitudes (see Table 1). This was somewhat surprising considering that HIV-related knowledge and participant attributions were virtually uncorrelated (\(r=.03\)).

Discussion

The goal of our study was to determine the applicability of the Attribution-Helping model\(^7\) to the HIV-related attributions and treatment attitudes of DCPs. Since the majority of DCPs receive some degree of mandatory education and training on the treatment of PLWHA, we also sought to determine what effect, if any, participants’ attributions had on the previously demonstrated relationship between HIV knowledge and treatment attitudes. We believe

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\*p<.001
our study to be the first to incorporate a prominent social-psychological theory in the explanation of DCPs’ attributions and treatment attitudes. Several findings emerged from this research that may have utility for future research and practice with DCPs responsible for treating PLWHA.

Consistent with the Attribution-Helping model and findings from use of the model within the general population, participants’ attributions were significantly impacted by the manner in which a patient was perceived to contract HIV. Though no actual information was provided as to how the patient contracted HIV, it is believed that participants used the provided identity of the patient (heterosexual, homosexual, injection drug user), inferred the cause of HIV infection from this information, and made an attribution about the responsibility of that person for contracting HIV. The fact that participants attributed more responsibility for contracting HIV to the IV drug user than to the heterosexual nondrug user was consistent with attribution theory.

Somewhat surprising was the statistical similarity between participants’ attributions toward the heterosexual and homosexual individuals. In a recent study, Seacat et al. found significant differences between participant attributions toward heterosexual and homosexual PLWHA among a sample of undergraduate students. Perhaps additional factors such as geographic location of the study (the previous Seacat et al. study was conducted in the Midwest) may have influenced dental students’ attribution responses in this study due to the number of PLWHA DCPs encounter in more population-dense regions, such as that in the present study. Future research is needed to determine whether factors such as geographic location significantly influence the HIV attribution-helping process. Overall, these findings suggest that how one contracts HIV (with particular emphasis on IDU status) impacts the attribution response of DCPs toward that individual. The next step was to investigate whether DCPs’ attributions and/or HIV/AIDS knowledge impacted their treatment attitudes.

In support of the Attribution-Helping model, we found that there was a significant relationship between DCPs’ attributions and treatment attitudes toward PLWHA. As attributions of responsibility increased, so did negative treatment attitudes toward that patient. Considered in conjunction with other study findings described above, this demonstration of empirical support for the theoretical link between DCPs’ attributions and treatment attitudes would suggest that the Attribution-Helping model is a viable model for understanding the relationship between DCPs’ attributions and their treatment attitudes toward PLWHA.

We also sought to test whether participant attributions would impact the positive effect of HIV knowledge that has been demonstrated in prior studies. We initially found participants’ HIV/AIDS knowledge to significantly and positively impact their treatment attitudes toward PLWHA. However, when considered in conjunction with participants’ personal attributions about the patient, HIV/AIDS knowledge no longer remained a significant predictor of treatment attitudes. In essence, the findings indicated that the HIV-related knowledge effect on treatment attitudes was suppressed by participants’ attributions of responsibility. This finding was somewhat surprising and suggests that, despite the level of HIV-related knowledge the participants had, their personal attributions about PLWHA were more predictive of their true treatment attitudes. One potential explanation for this finding may be that personal attributions are more personally relevant and emotion-laden than HIV-related information; thus, the attribution process ostensibly overshadowed the HIV information effect.

Identifying attributions as a significant predictor of dental students’ treatment attitudes significantly adds to the growing body of literature focused on understanding factors that influence the treatment of PLWHA in professional health care settings. Additionally, the suppression of HIV/AIDS knowledge as a predictor of DCPs’ treatment attitudes toward PLWHA provides initial empirical evidence to suggest that information-based intervention strategies may not be sufficient for improving DCPs’ attitudes and behaviors toward PLWHA. Considered within the context of dental education, this finding is somewhat concerning because many existing HIV-related dental interventions focus primarily on enhancing HIV-related knowledge in hopes of fostering positive attitudes about treating PLWHA. While this strategy has been demonstrated to be somewhat effective in addressing one of the factors that ultimately contribute to DCPs’ treatment attitudes toward PLWHA (deficient knowledge), it does little to impact the personal attributions they may form toward their HIV-positive patients.

According to Heider and others, negative attributions often form when a perceiver (in this case, a dental student) lacks sufficient information regarding the personal and situational characteristics associated with an individual (PLWHA) incurring a negative event (e.g., contracting HIV). Augmenting
HIV-related information provides DCPs with the knowledge to comfortably treat their patients by helping the DCP to avoid known infection risks, which may improve treatment attitudes. However, this approach does not sensitize DCPs to the physical and psychological needs of the patient they are treating. Sensitizing DCPs to the unique needs and challenges faced by PLWHAs allows for providers to rely less on their attribution-formation process by providing them with first-hand, personal information that may help to effectively stimulate empathy and reduce attributional biases.

To effectively sensitize DCPs, dental curricula should include experiential opportunities for structured interaction between DCPs and PLWHAs, both in the classroom and in clinical treatment, in addition to information-based intervention strategies. Such opportunities may more consistently arise out of creative partnerships forged between dental schools and local AIDS service organizations (ASOs). Within the classroom, one strategy for experiential learning identified by Seacat and Inglehart was the use of HIV/AIDS discussion panels. Students in that study reported a preference for such learning opportunities and indicated this type of experience would help them become more familiar with the patients they were treating.

In treatment, creating an HIV-relevant experiential learning environment is more complex, considering HIPAA regulations and the fact that many PLWHAs fail to disclose their status to DCPs. Here again, a partnership with a local ASO may be advantageous. Within the clinic setting, there may be greater assurance that patients coming from an ASO will be comfortable disclosing their HIV status to their DCP during the normal course of treatment, as many of these individuals are actively involved with case workers advocating on their behalf. Care must be exercised, however, as to how structured clinical experiences with PLWHAs are implemented. We have encountered instances in which dental programs have implemented “special” HIV clinics or “special” days on which PLWHAs are treated to ensure that these individuals are identified and appropriately treated by the students. We strongly caution against this approach as it likely would serve to compromise confidentiality of patients and exacerbate the potent stigma and fear that PLWHAs face when contemplating dental treatment.

Another viable clinical option may be to integrate HIV-specific community-based clinical experiences into the dental curriculum. Kuthy et al. found this strategy to be helpful in increasing dental students’ willingness to treat a variety of underserved populations, including PLWHAs. In collaboration with local ASOs, it may be possible to schedule dental student treatment rotations and make these rotations a mandatory component of the dental curriculum. By seeing patients within the context of the ASO, there is greater assurance that confidentiality is maintained. Further, the stigma and fear associated with seeking out dental care by PLWHAs may be diminished.

A potential limitation of our study is its cross-sectional design. Participants for this study were recruited at one time point and from courses within the dental school curriculum. Another potential limitation of this study may have been recruiting dental students from only one dental program. Though other published studies on this topic have been limited to single-school recruitment, this recruitment strategy may limit the generalizability of the findings.

REFERENCES


