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HIV and Diabetes Treatment Adherence: Premedical Students' Perspectives

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ABSTRACT

Objective: This study explored how future physicians who are early on in their training conceptualize treatment adherence issues for a disease with a high societal stigma (e.g. HIV/AIDS) versus a disease with little to no societal stigma (e.g. diabetes).

Method: We surveyed 121 first and second year students enrolled in a BS/MD program. After observing a videotaped interview of a person with HIV/AIDS, students were asked to identify and resolve ethical dilemmas regarding treatment adherence, which were presented in the interview. This process was repeated for a videotaped interview of a person with diabetes. Students' responses to both interviews were compared.

Results: Analysis of qualitative comments indicated that students had difficulty identifying treatment adherence issues for high and low stigmatized diseases. Regarding the students' abilities to identify psychosocial factors and dilemmas for people with HIV, multiple concerns were identified, whereas most students had difficulty identifying psychosocial concerns for the person with diabetes. Most students had difficulty differentiating psychosocial dilemmas from ethical ones.

Conclusions: Results suggest that premedical students have difficulty identifying and resolving psychosocial and ethical dilemmas for individuals with differently stigmatized diseases. Their ability to understand and resolve treatment adherence issues is limited. Despite the fact that most students knew someone with diabetes, they had more difficulty identifying psychosocial issues associated with diabetes compared to HIV. Findings support the need for education and training in psychosocial/ethical issues



related to HIV and diabetes for students to help them better serve patient populations with diseases that bear low and high societal stigma.

Key words: diabetes, Human Immunodeficiency Virus, medical education, premedical students, treatment adherence

During the last decade, numerous studies were conducted with medical students and physicians with regard to the provision of medical care to people who have an immunodeficiency virus (HIV). These studies assessed knowledge and attitudes (McDaniel et al., 1995; Ali et al., 1996; Kopacz et al., 1999; Al-Jabri & Al-Abri, 2003), perceptions (Najem & Okuzu, 1998), and willingness to provide care (Radecki et al., 1999). Ethical issues such as the health care provider's duty to treat patients with HIV have also been studied. Post, Botkin, and Headrick (1995) assert that in addition to assessing cognitive and noncognitive factors of students applying to medical school, admission should also be based on a student's willingness to accept risks which are inherent in medicine, such as the risks involved in treating people with HIV or AIDS. A lack of awareness however, of HIV/AIDS among individuals entering the profession of medicine has been noted (Anjum et al., 2005).

Other diseases of a chronic nature carry less of a societal stigma than HIV/AIDS but are still difficult for physicians to manage. Diabetes has been described as an overwhelming disease for health care providers to treat because of the complex and recurring issues that surround it (Beckman, 2004; Crutcher et al., 2004). While negative attitudes among medical students regarding a willingness to care for persons with HIV/AIDS has been documented in the literature (McDaniel et al., 1995; Radecki et al., 1999), this is not the same for diabetes (e.g. Medline database searches from 2000 to present yielded no studies of this nature). A literature review revealed only one study, which surveyed premedical students as part of a cross-sectional study of intent to treat persons with HIV at various stages of medical education (i.e. medical students, residents, and physicians) (Radecki et al., 1999). The literature about diabetes reflects no studies on this topic. Given that HIV/AIDS and diabetes research has mostly focused on medical students and physicians, we chose to expand the literature by surveying premedical students (in a combined BS/MD program). Specifically, the purpose of our study was to explore the process by which BS/MD students (also known as premedical students for purposes of this study) identify, deliberate and resolve treatment adherence issues, including psychosocial and ethical dilemmas, with a highly stigmatized disease (e.g. HIV) versus a disease with essentially little to no societal stigma (e.g. diabetes). We chose diabetes because of the similarity of treatment adherence issues between it and HIV/AIDS. Individuals with either disease share similar concerns about treatment adherence (i.e. unpleasant side effects associated with their medications, medical regimens that must be followed very closely, etc.).

Reviewing the process by which these students resolve an ethical dilemma common to both diseases will assist medical educators in identifying gaps in students' mental processing and knowledge base, as well as uncovering their biases that may affect how they care for their future patients. We hope to develop educational experiences that reduce the likelihood that these future physicians will provide substandard care to persons with differently stigmatized illnesses when treatment adherence issues arise in the care of their patients. If we can gain a better understanding of premedical students' abilities to resolve ethical dilemmas surrounding treatment adherence, we can make appropriate recommendations for curriculum changes and develop educational activities that may influence how these future physicians will provide treatment to differently stigmatized patient populations.



Method

Data were collected during 2004 from first and second year BS/MD students at two consortium universities affiliated with the medical school. Students in the BS/MD program spend two years on the consortium campuses before entering medical school. All first and second year students enrolled in the BS/MD program from these two schools were eligible to participate. The institutional review board approved this study and 92% of the BS/MD students consented to participate.

To conduct this study, we first had to videotape interviews of patients and physicians. Standardized patients (SP) were used for the videotaped interviews and were provided with a script (see Appendix A for scripts). One SP played the role of a person with HIV and the other SP played the role of a person with diabetes. Interviews were conducted using the same format in a patient examination room in the medical school's clinical performance center. A real physician interviewed the SP; both SP and physician were male. We recruited an SP in his twenties to play the role of the college student with HIV and a 60-year-old man to play the role of a patient with diabetes. These age groupings accurately represent the demographics of the population at large for HIV infection (CDC, 2004b, 2004c) and diabetes (CDC, 2004a). The high prevalence of HIV is noted in males aged 20-24 and 65-74 for diabetes. It was important for the students to perceive the actors (i.e. SP) as real patients and our choice of gender and age of the patients coincided with what the students would most likely encounter in clinical practice.

After the interviews were videotaped, the authors arranged to come to classrooms during the regularly scheduled BS/MD lectures. In a classroom setting, a total of 121 BS/MD students viewed a 15-minute videotaped interview conducted by a physician of a person with HIV who presented psychosocial and ethical dilemmas involving treatment adherence. Immediately after viewing the video, students were asked to respond to a questionnaire using open-ended questions (see Appendix B). These questions asked students to identify the dilemmas and to describe how they would resolve them. Students provided a written response to these questions (a 2-inch space was provided after each question) after observing the interview. A similar videotaped interview of a person with diabetes was then viewed and assessed by students in the same manner (i.e. again students were asked to identify dilemmas and to describe how they would resolve them). Videotapes were counterbalanced so that approximately half of the students viewed the HIV case first followed by the diabetes case and visa versa. For example, the second year students at one Consortium University viewed the HIV case first, followed by the diabetes case. At the other consortium university, the second year class viewed the diabetes case first, followed by the HIV case. The same procedures were used when collecting data from the first year students so that no group of students from the same campus viewed the video in the same order. Data were collected using standardized procedures from students in groups based on their year in the program (i.e. first or second year) and their consortium campus (see Table 1).

Results

Table 1 provides a demographic breakdown of participants and the mean age of participants was 18.56 (S.D.=.681). Qualitative responses were reviewed by the authors and grouped by themes (treatment adherence, psychosocial factors/dilemmas, ethical dilemmas, and resolving dilemmas). There were no identifiable differences in responses among the groups who viewed case 1 before case 2. Also, the responses were not characteristically different between first and second year students. Thus, we do not distinguish individual groups in our results; the data reflect all 121 student responses.



Table 1. Demographics of Participants

Demographic Factor	Frequency (%)
Year in BS/MD program	
First year	63 (52.1)
Second year	58 (47.9)
Consortium University	
Akron Campus	
First year students	33 (52.4)
Second year students	30 (47.6)
Kent Campus	
First year students	30 (51.7)
Second year students	28 (48.3)
Gender*	
Male	50 (40.7)
Female	67 (54.5)
Ethnicity	
Caucasian	63 (51.2)
Asian/Pacific Islander	49 (39.8)
African American	2 (1.6)
Hispanic	1 (.8)
Biracial	4 (3.2)
Other	2 (1.6)

*4 individuals did not report gender

Treatment Adherence

Analysis of qualitative comments indicated that most students (64%) had difficulty identifying treatment adherence issues for high and low stigmatized diseases. One student recognized how the HIV (PWHIV) infected person’s concern about his appearance and what others might think interfered with his “actively caring for himself.” Thirty-six students (30%) felt that the person with PWHIV’s embarrassment about having HIV contributed to him not taking medications as articulated by one student. Students’ responses included statements such as, “He feels much embarrassment in having HIV and this resulted in him only partially taking his medications.” Some other students believed that the patient’s concerns about how to pay for the medication influenced his non-adherence. Twelve students (10%) identified that the PWHIV was concerned about using insurance to pay for medications either because his parents would find out about his HIV status if he used their plan, or the HIV would inhibit him from receiving his own insurance. Forty-two students (35%) identified that the PWHIV was afraid to take medication because of fear or concern that others would find out.” In describing the patient’s lack of understanding as contributing to non-adherence, a student reported, “He doesn’t understand the seriousness of the disease. He didn’t take his meds how he was supposed to which shows he doesn’t understand what they will do for him.”

Different themes regarding treatment adherence emerged for the person with diabetes. About 33% of all students believed the patient’s lack of knowledge about diabetes and the importance of treatment contributed to non-adherence. Patient’s concerns about side effects and their view that side effects of medication are worse than having diabetes were also recognized. Patients’ distrust of medication and view of medications as “chemicals” were identified as contributing to non-adherence. One student summed it up by saying: “The patient does not understand, and is afraid and skeptical of the medicine, and taking care of the disease seems like



more trouble than what it is worth.” Seven students (6%) reported that non-adherence was because the patient was in denial about his diabetes and had minimized the seriousness of diabetes. One student commented: “Patient feels well enough that he cannot justify taking the medication and monitoring his blood sugars.” Another student responded: “Patient does not seem to really understand the seriousness of his illness and seems to be putting it off/not acknowledging it.” A total of 29 students (24%) believed that the patient was “fearful” about taking medication due to the side-effects, but no student considered this as a legitimate fear. One student described the patient as having an “exaggerated fear of the side effects of his diabetes medication.” Another student even suggested that the patient “get counseling to overcome his fear of medication.” Fifteen students (12%) recognized that the patient’s reluctance to change his diet or lifestyle contributed to his difficulty with treatment adherence. One student reported that the patient “Does not want medication to affect life; going out with friends.” Another student even attributed the patient’s non-adherence to laziness.

Psychosocial Factors/Dilemmas

Regarding the students’ abilities to identify psychosocial factors and dilemmas for PWHIV, 38 students (31%) recognized the PWHIV’s sense of isolation and fear of telling people about his HIV status. In addition, 25 students (21%) recognized the stress and burden that the PWHIV expressed with regard to keeping his HIV status a secret. For example, one student stated: “The stress of his diagnosis is weighing heavily on his choices about disclosing his condition.” Sixty-seven students (55%) also recognized the PWHIV’s feelings of embarrassment and how this contributed to his isolation and/or hesitation to disclose. One student said: “The patient is embarrassed that he has HIV, he sees it as a weakness or something he did. He said people would “blame him”...He wants to tell his girlfriend but he is scared of losing her...”

Most students (73%) had difficulty identifying psychosocial concerns for the person with diabetes, and instead focused on the patient’s lack of understanding and unwillingness to follow their physician’s advice. Eighteen students (15%) recognized the person with diabetes was concerned about having to change his/her lifestyle and was concerned with about how to manage their diet during social outings. One student described the patient as having “...issues with how to control self and respectfully decline certain food items in formal situations,” whereas another student mentioned the impact of diabetes on his home life and recognized the patient’s view that “his wife was pushing the diet.”

Ethical Dilemmas

About one-third of the students (30%) had difficulty differentiating psychosocial from ethical dilemmas and ethical dilemmas were often listed as psychosocial dilemmas. The primary ethical dilemma identified by students involved the question of whether or not the PWHIV should disclose his/her HIV status. Most students (83%) identified the main moral dilemma of whether or not the PWHIV should contact the person from whom they believed HIV was contracted, as well as their partner, or keep their disease a secret. The role of the physician in disclosing a patient’s HIV status to protect others from infection was also identified. For example, a student stated: “The physician is morally bound to make sure the patient does not spread the virus...” Students gave comments about the physician’s role in adherence with a few students and stated that “it is the doctor’s ethical duty to get the patient to take their medication.” Some students felt that the PWHIV should tell his/her parents about his/her HIV status and one student stated that “The family has a right to know.”

Students had more difficulty identifying ethical dilemmas for the person with diabetes. Twenty-three students (19%) identified the use of herbal or alternative therapies as an ethical dilemma. One student exclaimed: “I would explain to [patients] that herbal



medications do not produce results, that they are not validated by the FDA....” Other students identified whether patients can be forced to take medications as an ethical dilemma. One student felt the dilemma for the physician was to “require regular blood monitoring, diet and medication versus letting the diabetes go.” Another student identified the ethical dilemma as the patient’s autonomy versus paternalism, or “what’s best for the patient.” Nineteen students (15%) did not answer this question or reported that there were no ethical dilemmas.

Resolving Dilemmas

With regard to what students would do if they were the patient’s physician, 83 students (69%) indicated that they would encourage the PWHIV to tell others about his/her status, including their partner. One student was less specific about what he/she might do and stated, “The best way to help a patient with a dilemma (like in this case) is to listen to the patient and help inform them of the possible consequences or possible routes to take.” Another student described the physician’s role in a different light: “it’s hard to maintain a professional standpoint and give good, strong advice without overstepping your bounds but I may have been more upfront with the patient by stating some serious outcomes from his decisions.” One student went as far as to say that the patient “...should tell his family and his girlfriend and the girl who gave it [HIV] to him. If he didn’t, I would find a way to make him because it is also unethical to let people get infected when I could prevent it.” Eight students (6%) mentioned that they would like to help him manage his medications by “giving him a pill box” or “emphasizing the importance of taking medication.”

For the patient with diabetes the common themes that emerged included helping the patient to develop a better lifestyle (i.e. diet, exercise, etc.). There was inconsistency among students regarding their views on herbal medications. One student indicated that he would explain to the patient that “herbal medications do not produce results”, whereas another student mentioned that she would like to “learn what herbal remedies” the patient is taking. Thirty-nine students (32%) conveyed the importance of educating the person with diabetes about his/her disease, long-term consequences of diabetes, treatment options, and side effects of medication. One student reported: “Education is key. Keep in contact. Ask him if he has any concerns. Make sure he’s aware of later consequences.” Only ten students (8%) attempted to look at non-adherence issues from the patient’s point of view, imagining what it must be like to have diabetes and having to face some choices. One student stated, “I would better relate to the patient to make him feel as though we are on the same side.”

Out of the 121 student participants, only five (4%) indicated knowing someone with HIV and acknowledged the stigma and feelings of embarrassment surrounding that person’s case. One student commented, “[m]any of the issues in the case are *very* similar to my friend’s situation,” and another student responded, “...my good friend who no longer lives. He was never open about it until he was about to die...” For diabetes, 81 students (67%) indicated knowing someone with diabetes, and in most cases it was a family member who had the disease. The psychosocial issues expressed by the standardized patient with diabetes were similar to participant responses when they described the person(s) who they know who have diabetes.

Discussion

Results of this study suggest premedical students have difficulty identifying and resolving psychosocial/ethical dilemmas for individuals with differently stigmatized diseases. Their ability to understand and resolve treatment adherence issues is limited. Even though most students knew someone with diabetes, they had more difficulty identifying psychosocial issues associated with diabetes than with HIV.



Table 2. Themes and Domains associated with Students' Responses for HIV and for Diabetes

HIV

Treatment Adherence

- Embarrassment about HIV
- Concerns about how to pay for medication
- Fear that HIV status would be disclosed

Psychosocial Factors/Dilemmas

- Sense of isolation
- Feelings of embarrassment
- Fear of disclosing HIV status
- Stress and burden associated with non-disclosure
- Anger associated with HIV transmission

Ethical Dilemmas

- Confronting person from whom HIV was contracted
- HIV disclosure
- Physician's role in disclosing a patient's HIV status to protect others
- Physician's role in patient's treatment adherence
- Patient's responsibility to disclose HIV status to their family members

Resolving Dilemmas

- Encourage patient to disclose status to prevent future harm to others
- Respecting patient's autonomy versus obligation to protect society
- Duty to help patients with medication management

Diabetes

Treatment Adherence

- Patient's lack of knowledge regarding importance of treatment
- Concerns about side effects
- Patient's distrust or view of medication

Psychosocial Factors/Dilemmas

- Behavioral lifestyle change

Ethical Dilemmas

- Herbal and alternative therapies versus traditional medicine
- Forcing patients to take medication versus respecting patient autonomy
- Physician responsibility to provide medical treatment

Resolving Dilemmas

- Help patient with lifestyle changes
- Herbal medications
- Educate Patients
- Understand patient's perspective

Reviewing the process by which these premedical students resolve psychosocial/ethical dilemmas common to diseases has assisted us, as medical educators, in identifying gaps in students' mental processing and knowledge base. It has also helped us to uncover the students' biases that may affect how they care for their future patients. We hope to help students recognize and become knowledgeable about psychosocial/ethical issues in chronic illnesses so they can provide optimal care to their future patients. Our



next step is to use our data to develop educational experiences that can improve training for students to better prepare them to recognize and manage treatment adherence issues. The need for medical schools to address training in HIV/AIDS (Leszczyszyn-Pynka & Holowinski, 2003) and diabetes (Beckman, 2004) has been recognized in the literature. Future studies should work to address improving medical education and training for treating patients with HIV/AIDS and diabetes. The results of this study support the need for education and training in psychosocial/ethical issues related to HIV and diabetes. Future studies may then investigate the impact of early training on subsequent patient care.

Results of this study are limited by its design in that only BS/MD students from one US medical school were included as participants; the results may not be generalizable to all medical students. Although the participants represent a cross-sectional population (e.g. they were in the first two years of a six year accelerated program from two consortium campuses), the commonality between them was that these students' training thus far was very uniform and standardized. A methodological limitation of this study could be that both the SPs and the physician were male, although the authors address their rationale for this earlier in the paper. The authors recognize that gender bias may have occurred and possibly influenced the results of this study. Future studies should consider balancing the gender of physicians and SPs to address this issue and determine its influence.

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Appendix A

Standardized Patient (HIV)

You are a college student who has been recently diagnosed with HIV. You contracted HIV by having sex with a co-ed, who you met at a party. After having been chastised by your friends for being a virgin, you sought out a female student that was willing to have sex with you without any future commitment. Since the party, you have not seen or talked to this female student and can only remember her first name.

Only you and your clinician know that you have HIV; you feel as though you cannot trust anyone else including your roommate, friends, family, and a female student you are currently dating (though relationship is not sexual – yet). You are scared that your friends and family will not understand your illness, perhaps even blame you for having been irresponsible. Though you would like to have the support from your family and friends, you do not want to tell them and do everything in your power to hide your secret. You also would like to find the female student you had sex with and tell her that she has HIV, but also fear that she may not know she is HIV positive and blame you, believing it was *you* that gave it to her. And, if she were to blame you, she may even tell others that you have HIV, possibly ruining your social and academic life at college. On the other hand, you do not want some other person to contract HIV from this particular student. You recognize your responsibility to protect others, but your own privacy is at stake.



Your clinician has prescribed a combination of drugs as part of your treatment regimen. You have taken a few pills but do not take all of them because there are just too many and you do not want people to know that you are taking them. You believe that if you take all of your pills, people will start to wonder what they are for, especially your roommate and family. Also, you believe that if you only take a few, the supply will last longer. Though you got the first few months supply covered by the healthcare clinic at the college, you will have to use additional resources to cover the cost of the drugs once your initial supply runs out. You are on your parents healthcare plan until you graduate from college, however, you fear that it would be difficult keeping your medical records confidential, especially when the list of HIV medications may appear on your family's medical bills and receipts. Furthermore, you indicate to your clinician that you feel just fine, and think that "the drugs are working".

Although you have been told of the possible negative consequences associated with not taking your medications, you believe the medications will not help you. You will always be HIV positive and it is more difficult to live with the stigma than it is to live with the physical side effects of HIV. Even if you were to successfully graduate college without anyone ever knowing about your illness, you fear that getting employment and your own healthcare insurance will be a difficult battle.

Standardized Patient (Diabetes)

You are a 60 year-old man who was diagnosed with type 2 diabetes last year. In your early adult years you were extremely overweight but now you have your weight under control through exercise. Even though you have maintained a relatively healthy weight over the past year, your physician recommended six months ago that you change your diet. Besides a diet change, your physician also prescribed medications so that your body could produce more insulin. However, you have inconsistently adhered to both the recommended diet and prescription medications.

You make several excuses for why you do not follow your diet – anything from not liking the recommended diet foods to being tempted by your friends to eat the foods you do like, but which are not good for you. As for not taking your medications, you feel as though these "chemicals" are bad for your body and prefer to use alternative medicines, i.e., herbal remedies given to you by your friend who is an herbalist in your home town. Though you have not disclosed your use of these alternative medicines to your physician until today, you have been taking them on a regular basis and sometimes in conjunction with your prescribed "chemicals". Furthermore, because you believe you "feel just fine", you have missed your last appointment for a blood glucose check.

Although you know that if you do not manage your blood glucose, long-term complications may arise such as kidney dysfunction and heart attacks, you believe that you would never develop these complications, especially since you have lost the weight and exercise daily. Your physician explains that even diet and exercise may not be useful in managing your blood glucose, but you argue and say that you do not want to take unnatural medications.

Your wife argues with you on a daily basis and demands that you follow the physician's orders. However, you tell her that you are an autonomous individual that will do what is in *your* best interest. The only reason you sometimes take the prescribed medications is to make your wife stop arguing with you. You feel stressed because of the tension at home and because you do not want to keep checking to see if your blood glucose is abnormal. You believe that you do not have a disease (and try to prove it by not following the physician's or your wife's orders). If any of your friends or family asks about your health, you always answer "just fine". You cannot even admit to yourself that you have a disease that needs to be carefully controlled with appropriate diet, exercise, and medication.



Appendix B

Questions participants were asked:

1. Identify, if any, the psychological factors/dilemmas in Case 1 (or Case 2).
 2. Identify, if any, the ethical dilemmas in Case 1 (or Case 2).
 3. Fast forward to the future. If you were this patient's physician, what would you do to resolve this dilemma?
 4. Do you know anyone with HIV (or Diabetes)?
 5. If so, can you identify any psychosocial and/or ethical issues surrounding this person's case?
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