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Medical Student Judgments of Adolescents With Alcohol Use Disorders (AUD)

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Abstract

The clinical encounter presents opportunities for detection and intervention of adolescent alcohol use disorders (AUDs).

Aims—Investigate (a) identification rate of AUDs, (b) whether AUD identification predicts clinical judgment, and (c) patient characteristics influences on clinical judgment. Medical students ($n = 123$) read a case study and completed questions on diagnosis and clinical judgment. Twenty-five percent of participants identified AUD adolescents, who were more negatively rated than non-AUD adolescents. Prior clinical experience and addiction training predicted AUD identification. Patient race and gender influenced clinical judgment ratings. Addictions training is needed to improve identification rates. Study limitations are noted.

Keywords

adolescent; alcohol use disorders; clinician; identification

Introduction

Approximately 75% of surveyed high school students in the United States have consumed alcohol by the end of high school (Johnston, O-Malley, and Bachman, 2002). Alcohol consumption increases the risk of adolescent mortality due to motor vehicle accidents,

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drownings (Mitic and Greschner, 2002), and suicide/suicide attempts (Mitic and Greshner, 2002). Teenagers who drink are more likely to suffer trauma (Bonomo et al., 2001; Hingson, Heeren, Jamanka, and Howland, 2000; Madan, Beech, and Flint, 2001; McLeod, Stockwell, Stevens, and Phillips, 1999), and suffer from physical (Clark, Lynch, Donovan, and Block, 2001) or mental health problems (Abrantes, Brown, and Tomlinson, 2003).

The physician-patient encounter is a unique opportunity for early detection and intervention with alcohol-involved adolescents. Despite the prevalence of alcohol-related problems among adolescents, physicians often miss the diagnosis of alcohol abuse or dependence in youth (Berenson, 1998). As a result, the potential for the physicians to intervene with adolescents is underutilized. The lack of medical education on adolescent development and addictive behaviors (Hoffman, Chang, and Lewis, 2000; Isaacson, Fleming, Kraus, Kahn, and Mundt, 2000; O’Gara et al., 2005) is a contributory factor. Few, if any, international studies have studied the levels of medical education with respect to this important topic. Further, little is known about how clinicians identify adolescent alcohol-related problems in actual practice.

Accurate identification of adolescent AUD is challenged by the diversity of patterns in alcohol consumption behavior across different racial, ethnic, and gender groups, as documented by data from national (Park, Mulye, Adams, Brindis, and Irwin, 2006) and international sources (Chun and Sohn, 2005; Liu et al., 2001; Torikka, Kaltiaia-Heino, Rimpela, Rimpela, and Rantanen, 2001). Clinical research suggests that the diagnosis and treatment of substance abuse and mental health needs for minority individuals differ compared to White adolescents. This research has been conducted via reviews of actual (e.g., chart review) or simulated (e.g., use of vignettes) clinician behavior. For example, Kilgus, Pumariaga, and Cuffe (1995) reviewed the DSMV III-R diagnoses for 352 psychiatric inpatients between the ages of 12 to 18. They found that substance use was diagnosed much less frequently in Blacks compared to Whites.

Similarly, the use of written or videotaped vignettes to investigate clinician decision-making suggest that patient characteristics influence the kinds of decisions made about a patient, even when it is irrelevant to the decision (see Schulman et al., 1999). However, few studies have investigated clinician judgment with respect to an alcohol-involved adolescent (Stimmel, Cohen, Collier, and Swartz, 2000). Furthermore, the majority of studies are characterized by a lack of theoretical perspective, which makes it challenging to understand at what point judgment errors are made (Lopez, 1989).

In addition to understanding *what* decisions were made about patients, we need to understand *why* they are made in order to train clinicians (Lopez, Smith, Wolkenstein, and Charlin, 1993). Attributional theory (Weiner, 1985) links social attitudes to behavior by predicting that people perceived to lack control are judged to be less responsible, elicit more sympathy, and receive more help. This study attempts to apply this theoretical framework to understanding how clinicians make decisions about adolescent drinking given a set of patient demographic characteristics (i.e., race and gender). In doing so, we decided to utilize medical students as the study participants. Although at an early career stage, querying medical students captures “baseline” levels of knowledge and attitudes that have not yet been influenced by medical experience. Study goals were to (a) investigate identification rates for an adolescent with an AUD, (b) to determine whether identification of an AUD predicted clinical judgment ratings, and (c) to assess whether patient demographics (race, gender) influenced clinical judgment ratings.

Methods

Participants

The sample consisted of 123 (47% male) medical school students recruited following a required surgical seminar that did not include any didactics or discussion of substance use. Participants averaged 24 years, and a little over one third were second- or third-year students. Approximately 40% were White or Asian, and nearly half were interested in internal medicine. Nearly 75% reported less than one year of working in a hospital, 70% had prior clinical experience with adolescents, and 30% had some coursework in adolescents and substance use (see Table 1).

Procedure

Recruitment and study procedures were administered by the study's principal investigator, a doctoral level psychologist with training in the ethics of human subjects research. Participants were advised on their rights as research participants (e.g., risks/benefits, voluntary, responses anonymous). After signing informed consent, participants were randomly assigned to read one of four versions of a hypothetical case study of a teenager who had come to a health clinic with an injured ankle (see Appendix). In each of these conditions the fictitious teen patient was either a (a) White male (WM, $n = 31$), (b), White female (WF, $n = 31$), (c) Black male (BM, $n = 29$), or (d) Black female (BF, $n = 32$). After reading the hypothetical case study, participants filled out a questionnaire that asked them to identify potential diagnoses and provide clinical judgment ratings. Because the study focus was to investigate clinician responses to adolescents diagnosed with an alcohol use disorder (AUD, either abuse or dependence), if a participant did not identify an AUD as a working diagnosis for the case study patient, he/she was asked to fill out an identical questionnaire for the same hypothetical teen but whose working diagnosis included an AUD using the instructions privately: "If you have diagnosed the patient with anything except alcohol abuse or dependence, you will be asked to complete another questionnaire for the patient. This time, answer the questions as if the patient was diagnosed with alcohol abuse or dependence." Of 95 participants that were asked to do so, 81% complied.

Instrumentation

The case study included presenting complaint and symptoms sufficient to identify an AUD (alcohol abuse or dependence, DSM-IV; see Appendix A). The questionnaire included demographics and several indices of clinical judgment including working diagnoses, judgments of responsibility, and desire to help the patient. Items (on a nine-point scale) were modified from earlier research (Chavira, Lopez, Blacher, and Shapiro, 2000; Lopez, 1983; Weisman and Lopez, 1997; See Appendix B).

Statistical Analyses

First, the number of participants who identified an AUD in their working diagnosis was determined. T-tests (with continuous variables) and regressions were conducted to examine predictors of identifying an AUD in the working diagnosis. Next, utilizing the sample that filled out the questionnaire twice (i.e., once for a non-AUD teen and then again for a teen with an AUD), repeated measures analyses of variance (ANOVAs) were conducted to determine if identification of an AUD diagnosis and demographics of the hypothetical patient (i.e., race and gender) predicted the various clinical judgment ratings. Separate repeated measures ANOVAs were conducted for each clinical judgment dependent variable and, in addition to the main effects of alcohol identification, race of patient, and sex of patient, all two-way and three-way interactions were included in the models.

Results

Rates of AUD Identification

Only 23% of participants identified an AUD as part of the hypothetical patient's working diagnosis. There were no differences in rates of AUD identification across the four conditions. Other diagnoses (e.g., ankle injury) were not considered incorrect. Participant demographics and other characteristics were examined as predictors (e.g., Table 1). After controlling for participant gender and race, regressions revealed that direct experience working with adolescents ($F = 7.80, p = .005$) and prior training in adolescent substance use ($F = 10.08, p = .001$) predicted a diagnosis of adolescent AUD.

Alcohol Identification in Predicting Clinical Judgment

The effects of AUD identification in relation to the various clinical judgment ratings were tested. Repeated measures ANOVAs revealed a statistically significant main effect for alcohol identification in predicting patient prognosis. If given no intervention, patients identified with an AUD were expected to do worse than patients diagnosed with other problems ($F(1,73) = 4.81, p < .05$). Further, they were expected to benefit more from mental health treatment ($F(1,73) = 4.45, p < .05$) than patients diagnosed with other non-AUD problems. There were also statistically significant main effects for AUD identification in predicting participants' clinical judgment ratings for the working diagnoses. Participants rated the cause of patient drinking as significantly more internal in locus of control ($F(1,72) = 9.63, p < .05$) than for non-alcohol diagnoses, and that patients with AUD were significantly more responsible for their drinking than for other problems ($F(1,73) = 7.13, p < .05$). Further, clinicians-in-training reported significantly less desire to help the patient if he was identified with a drinking problem ($F(1,73) = 4.54, p < .05$).

Race and Gender of Patient as Predictors of Clinical Judgment

The hypothetical patient's race and gender emerged as significant predictors of the clinical judgment ratings or pity for patient and the extent to which the participants viewed the patient's problem as controllable. First, the patient's race was related to how much pity the participants reported feeling for the teen patient. Regardless of the identified working diagnosis, White patients (both males and females) were pitied more for their problems than black patients (both males and females; $F(1,74) = 4.01, p < .05$). Secondly, repeated-measures analyses revealed a significant 3-way interaction where race by sex by alcohol identification interaction predicted participant ratings of causal controllability ($F(1,72) = 4.47, p < .05$). A simple effects test was conducted to examine the nature of the interaction. The simple effects test indicated that moving from a non-AUD to an AUD diagnosis increased participant ratings of causal controllability for patients of different races and genders, with the exception of White males. More specifically, White males were the only group for whom drinking was rated to be a significantly less controllable problem than non-alcohol-related problems, such as ankle injury ($F(1,72) = 5.33, p < .05$). Drinking for both White females ($F(1,72) = 7.55, p < .05$) and Black females ($F(1,72) = 4.44, p < .05$) was rated to be significantly more controllable than non-alcohol-related diagnoses. While ratings of controllability also increased for Black male drinking, it did not achieve statistical significance (See Figure 1).

Discussion

Study aims were to determine how frequently medical school students were able to identify an alcohol use disorder (AUD) as part of a working diagnosis for a hypothetical adolescent patient. Despite the information provided in the vignette, less than 25% of the participants were able to identify adolescent AUD. Interestingly, those who had received specific

training in adolescent substance abuse and those with direct experience working with adolescents were more likely than other clinicians to identify AUD as a potential diagnosis. However, only less than 30% of participants in this study reported receiving any addictions training in their medical curricula. The lack of training has been reported in other research (Friedmann, McCullough, Chin, and Saitz, 2000; O’Gara et al., 2005). Therefore, given the importance of early identification of substance abuse problems among adolescents, specific substance abuse training in medical school settings appears necessary in order to contribute to the health and well-being of youth. It is worthwhile to note that increased general medical training and education may not be synonymous with more exposure to addiction training. As medical students graduate to diverse areas of medicine (e.g., non-primary care), education and training on substance abuse may remain minimal. Indeed, more experienced medical staff were found to have lower confidence and more negative attitudes in treating patients with alcoholism than less experienced staff (Geller et al., 1989).

Study findings also demonstrated that these clinicians-in-training responded more negatively to patients classified as having an AUD compared to patients who did not have an AUD. When the working diagnosis was AUD versus other diagnoses, physicians-in-training were more likely to provide a poorer diagnosis, view a patient’s problem as more internally controllable, and express less of a desire to help the patient. These findings converge with prior research demonstrating that negative attitudes toward alcoholics have been significantly associated with fewer referrals to alcohol treatment (Geller et al., 1989). Related, prior research demonstrating that when alcohol was implicated, observers’ attributions of responsibility for both aggressor and victim (in a case scenario depicting an argument ending with a man striking a woman) increased (Leigh and Aramburu, 1994). Addictions training for medical professionals are needed to improve screening rates and address negative attitudes. Research demonstrates that training to improve clinician attitudes leads to positive behavior change (e.g., increased smoking counseling behaviors) (Borrelli, Hecht, Reiss, Goldstein, and Abrams, 2002; Borrelli, Lee, Novak, 2007).

Findings suggest the need for further investigation into whether race-related bias influences clinical judgments. For all patient groups with the exception of White males, drinking was considered to be a more controllable problem compared to other diagnoses such as ankle injury or physical abuse. White males were the only group rated to have less control over their alcohol use disorder, and this finding suggests that this group could be judged less negatively relative to the other groups. Attributional theory predicts that people with less control over their problems will be judged to be less responsible for their problems and will be more liked, receive a better prognosis and more help than individuals who are considered to have control over their problems. In addition, White teenagers received more pity than Black teenagers, regardless of whether an AUD was identified. Similarly, clinicians may be more inclined to help patients they pity more.

Limitations

Given that the sample for this study was recruited from a single medical school, the generalizability of this study’s results is limited. However to note that the low levels of education and training on substance abuse noted in this study sample are consistent with those observed in other medical settings across the country (Davis, Thomson, Oxman, and Haynes, 1995; Steg, Mann, Schwartz, Wise, and Bailey, 1990). Future studies of clinical judgement could increase generalizability by including students from institutions across the United States as well as international medical schools in study samples.

Another study limitation included re-administering the questionnaire to those who did not initially identify AUD. It is not known whether being asked to retake the questionnaire

influenced participant responses. Also, there may have been an order effect as participants always answered the question about a patient with AUD second. Given that the primary objectives of this study were to investigate the rate of AUD identification for an adolescent patient, and to investigate whether patient characteristics influenced clinical judgment ratings, it was difficult to control for these potential confounds without implementing a much larger sample and complex design. However, future studies would benefit from eliminating potential order effects.

Conclusion

The most important point of the research is that most physicians-in-training (medical students) are not detecting AUDs in adolescents. It is likely that they are not receiving enough training or experience to deal with patients presenting with AUDs. This is a serious shortcoming since alcohol use is implicated in nearly half of all patients' visits to trauma centers (Gentilello et al., 1999), and up to 44% test positive on alcohol screening questionnaires for chronic alcohol abuse (Gentilello et al., 2000). A clear pattern for response to drinking was found. By using an attributional analysis, bias against drinkers was documented. When patients were labeled as having an AUD, their drinking was considered to be more internal, they were judged to be more responsible, and clinicians wanted to help the drinker less. The ability to detect race or gender differences in this study may have been limited by the low numbers of clinicians who correctly identified alcohol. There were two findings that warrant further investigation: drinking in White males was seen to be less controllable, and Black adolescents received less pity for their problems than White adolescents. Together this finding of under-diagnosis and negative views of adolescents with drinking problems suggests that medical students need to receive more training and education on addictions, with emphasis on reducing biased response to drinkers, particularly minorities and females.

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Biographies

Christina S. Lee, Ph.D., is an assistant professor in the Department of Community Health and the Center for Alcohol and Addiction Studies at Brown University. Dr. Lee's research investigates the effects of clinical training using brief interventions in opportunistic settings. She is currently involved in research to adapt brief alcohol and substance use interventions with vulnerable populations.

Ana M. Abrantes, Ph.D., is an assistant professor (research) in the Department of Psychiatry and Human Behavior at Brown Medical School and a research psychologist in the Addictions Research Group at Butler Hospital. Dr. Abrantes' research has involved the study of adolescent alcohol and drug use disorders and their associated psychiatric comorbidity. Dr. Abrantes is currently involved in the development of cognitive-behavioral and aerobic exercise interventions for individuals with addictive behaviors and mental health problems.

Suzanne M. Colby, Ph.D., is an associate professor of psychiatry and human behavior at the Center for Alcohol and Addiction Studies, Brown University. Her research interests include the development of brief alcohol and other substance use interventions for adolescents and young adults. She co-edited the book *Adolescents, Alcohol, and Substance Abuse: Reaching Teens through Brief Interventions*, which was published by the Guilford Press in 2001.

Steven R. López, Ph.D., studies the role of culture in psychopathology, assessment, and intervention, particularly in the context of Latino communities. In addition to his research, Dr. López has maintained a clinical practice for several years in both public and private mental health facilities. From 1995 to 1999 he directed a National Institutes of Health–Fogarty sponsored summer research training program for U.S. minority students and faculty in Mexico City in collaboration with the “Instituto Mexicano de Psiquiatria” and the “Universidad Nacional Autonoma de Mexico.”

Theresa J. Jordan, Ph.D., has conducted programmatic research on medical decision-making. This body of work emphasized biases in physicians' decisions associated with patient age, race, and gender and pioneered the use of decision modeling to capture both judgments of fact and judgments of value. She has worked with the Centers for Disease Control and Prevention, the World Health Organization, Health Canada, and other national and international agencies to assist in integrating her research findings into health care policies. Her most recent book, *Understanding Medical Information* (McGraw-Hill, 2001) distills much of her experience in academic medicine, with the aim of making medical research more accessible to psychologists, educators, and other non-physician professionals.

Glossary

Adolescent Alcohol Disorders (AUD)	classified as alcohol abuse or dependence.
Alcohol Abuse	characterized by a maladaptive pattern of alcohol use and symptoms that result in clinical impairment or distress. Symptoms include alcohol use despite failure to fulfill major role obligations, drinking in physically hazardous situations, alcohol-related legal problems, and drinking despite social or interpersonal problems. Recurrent drinking despite any one of these symptoms is sufficient to meet criteria for an alcohol abuse diagnosis.
Alcohol Dependence	is characterized as with or without physiological dependence (i.e., with or without evidence of tolerance or withdrawal) and includes the following symptoms: drinking larger amounts or over longer period of time than intended; persistent desire to cut down or quit drinking; spending a lot of time drinking or obtaining alcohol; giving up social, occupational, or recreational activities because of drinking; and continued use despite knowledge of alcohol-related problems.
Attributional Theory	social psychological theory that links social attitudes to behavior.

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Appendix A

Instructions

The following pages will present you with a brief case study about an adolescent patient. You will be asked to complete questions about diagnosis and prognosis, and to complete some rating scales. In some instances, you may feel that you require more information to complete a thorough assessment. For purposes of this case, please try to answer the questions based on the provided information.

These questions will be followed by a demographic information page asking questions about your level of training, age, etc. This questionnaire should take about 20 minutes to complete.

*****IMPORTANT: To ensure anonymity, please DO NOT WRITE YOUR NAME anywhere on these pages.**

Thank you for your participation. If you have any questions, please do not hesitate to contact the researcher at: XXX-XXXX.

Case Study

You are a primary care physician in an outpatient clinic. B.A. is a 13-year-old Black male who has come to the Teen Health Clinic with an injured ankle. B.A. was recently released from the Training School (incarceration for juveniles) and is now living with his new foster parents. His case worker has escorted B.A. to his appointment.

Presenting complaints: Pain in the left ankle for the past two days.

History of presenting illness: Patient states he injured ankle two days ago, was unable to walk without pain. Patient took some Tylenol, which has helped pain somewhat. He presents today because the pain is not resolved.

Past Medical History: A review of his chart indicates that up to a year ago, B.A. has been in good health. Recent medical history significant for occasional *sleepiness, fatigue*, and bruises on the arm. He also reports that he suffers blackouts occasionally.

Past surgical history: None

Medications and allergies: None

Physical Exam: Patient is afebrile, vital signs stable. HEENT is normal cephalic/atraumatic. PERRL - pupils equal, round, and reactive to light. Neck is non-rigid. Lungs are clear to auscultation. Heart: regular rate and rhythm. Abdomen: soft, nontender, nondystended, intact bowel sounds. Pelvis: no fractures. Extremities: decreased range of motion of the left ankle. Left ankle with ecchymoses, swollen, tender. All other extremities normal. Multiple ecchymoses of both arms. Neurological: motor and sensory function grossly intact in four extremities. Awake, alert, and oriented to person, place, and time.

Cigarettes: Patient has increased smoking from half pack to one pack a day.

Alcohol: Patient reports drinking most on weekends, averaging 6 beers at a time. Drinks twice during the week, averaging a beer or two each time. **States he is able to drink more than previously (2 beers at a time—now up to six beers)** (DSM-IV/ICD-10 symptom: tolerance (Martin, Kaczynski, Maisto, Bukstein, and Moss, 1995), and that **occasionally he drinks more than planned** (DSM-IV/ICD-10 symptom: Impaired control, drink more/longer than intended; Martin et al., 1995). Started drinking at age 13.

Drugs: Denies use.

Friends: Most drink beer on the weekends. A few use hard liquor.

School: States he currently attends school. In the interview, you note some inconsistencies in his replies regarding grade level and attendance.

Family: B.A. came from a single-parent home, mother on public assistance. Is currently living with foster parents. Biological father has history of alcohol abuse.

Patient History and Background: Patient is a 13-year-old Black male currently living with his foster parents. He has one younger sibling currently living with his mother. He complains of feeling depressed and anxious about his future. Patient has argued with mother, which led to his running away from home. **He spends most of his time smoking and socializing with his friends. Past records indicate that B.A. has been in trouble with the law. He has been charged with shoplifting** (DSM-IV/ICD-10 symptom: functional impairment) *In the past he has admitted to being a passenger in a car driven by a drunk friend* (clinical marker indicating need to ask further about possible substance abuse; Martin et al., 1995). Patient admits to engaging in unprotected sex, particularly while intoxicated (clinical marker indicating need to inquire about possible substance abuse; Martin et al., 1995). B.A. has expressed an interest in joining an athletic team to minimize contact with his current friends.

Presentation

B.A. is somewhat uncomfortable at the beginning of the interview, although he relaxes somewhat toward the end. His answers are occasionally vague and inconsistent with his previous remarks. B.A. explains that he hurt his ankle playing basketball.

Appendix B

Questionnaire

With small modifications, all of the items in the questionnaire were taken from an instrument developed by Lopez (1983) in a study of ethnic bias in clinical judgment. The table presents the construct, scaling information, citation(s), and an item example.

Construct	Likert scale	Citation	Item example
Diagnosis	Open-ended		What is your working diagnosis of this case?
Prognosis	1–9	Lopez (1983)	Given adequate intervention, what would be the patient's prognosis?
Clinical judgment ratings: controllability and stability of behavior	1–9	Chavira et al. (2000); Lopez (1983); Weisman and Lopez (1997)	To what extent can the patient behaviorally control the presenting problem?
Clinical judgment ratings: responsibility	1–9	Weisman and Lopez (1997); Weiner et al. (1988)	To what extent is the patient responsible for the presenting problem?
Affective responses: likeability of patient, anger, pity toward patient	1–9	Weisman and Lopez (1997); Weiner et al. (1988)	To what extent do you have feelings of pity for this patient?
Help-giving	1–9	Weiner et al. (1988)	To what extent is your immediate reaction to this patient one of wanting to help?

Figure 1.
Extent to which participants rated diagnoses as controllable across patients.

Table 1

Selected characteristics of participants who identified AUD versus non-AUD diagnoses

Participant characteristic	AUD (n = 28)	Non-AUD (n = 94)
Demographic		
Age (years)	24.4 (3.4)	24.2 (2.6)
Gender (% female)	42.9%	56.4%
Race (% White)*	57.1%	36.6%
Educational status*		
First-year student	14.3%	22.6%
Second-year student	57.1%	34.4%
Third-year student	28.6%	43.0%
Clinical experience		
Number of years of clinical experience	.43 (1.4)	.47 (.90)
Direct experience working with adolescents*	52.0%	72.3%
Received training in adolescent substance abuse**	50.0%	21.5%

*
 $p < .1$.**
 $p < .01$.