

STRUCTURAL AND CONTEXTUAL INFLUENCES ON
HIV/AIDS-RELATED DECISION-MAKING OF
NATIVE AMERICAN ADOLESCENTS

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PREFACE

Given the necessity to comprehend the decision-making processes of Native American adolescents pertaining to sexual risk-taking, this study measured decision-making (i.e., errors in judgment) in Native American late adolescents in the content areas most salient and relevant to AIDS vulnerability (AIDS-related sexual risk-taking). Structural factors (cognitive egocentrism, time perspective, and sensation seeking), contextual factors (cultural involvement and cultural identification), and demographic variables (Native American blood quantum, gender, age, size of hometown, parents' education, and academic performance) that potentially influence Native American adolescent decision-making in AIDS-related sexual risk-taking were examined.

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NOMENCLATURE

ACT	American College Test
AIDS	acquired immunodeficiency syndrome
CDC	Denter for Disease Control
CID	Cultural Identification
CIQ	Cultural Involvement Questionnaire
GPA	grade point average
HIV	human innumodeficiency virus
NAU	Northern Arizona University
OSU	Oklahoma State University
PF	Personal Fable
SS	Sensation Seeking
STD	sexually transmitted disease
STP	Sure Thing Principle
STPI	Stanford Time Perspective Inventory

CHAPTER I

INTRODUCTION

The literature documents an increasing prevalence of human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) in Native American adolescents (Centers for Disease Control [CDC], 1993) and predicts an increasing incidence of HIV and AIDS in this population throughout the next decade (Chase, 1991; Metler, Conway, & Stehr-Green, 1991; Sullivan, 1991). In order to understand the potential impact of HIV and AIDS for the adolescent population in general, and the Native American adolescent population specifically, an examination of the prevalence of AIDS for, and its impact on, these individuals is essential. Additionally, an examination of the biological, psychological, social, and cultural factors as well as the decision-making processes related to HIV/AIDS-risk-taking behavior is essential. Furthermore, intervention/prevention programs targeting adolescent risk-taking behavior must be examined for effectiveness.

The second chapter of this document contains a review of the literature. It begins with a simple definition of HIV and AIDS, provides relevant characteristics of the virus, and contains information regarding prevalence of AIDS in the general population, in the Native American population, and in the Native American adolescent population. Specific concerns regarding vulnerability for the adult and adolescent Native populations are presented. The review continues with an evaluation of the literature regarding adolescent sexuality and sexual behavior that demonstrates adolescents are at increased risk for HIV exposure. Next a brief survey of AIDS prevention and intervention programs is provided. The next section of the review contains a brief examination of the adult and adolescent decision-making literature; this is followed by an examination of processes relevant to, and factors influential for, adolescent decision-making related to general risk-taking behaviors and AIDS-specific sexual risk-taking. A survey of the literature on Native American

adolescent decision-making processes per se as it pertains to risk-taking for engaging in unsafe sex practices follows. The last section examines those factors that influence Native American adolescent decision-making as they specifically relate to the risk-taking behaviors in sexuality and the contraction of HIV and AIDS.

Chapter 3 provides a description of the study. Included in this section are specific hypotheses regarding three types of variables: demographic, structural, and contextual. A method section follows that provides information concerning participants and specific measures included in the study. A section indicating results brings this chapter to a close. Sample differences as well as results of specific hypotheses are provided; post-hoc analyses on the three types of variables are included. Analyses pertaining to the newly developed Cultural Involvement Questionnaire (CIQ) are reported.

A comprehensive discussion provides the essence of Chapter 4. Findings are evaluated for each hypothesis along with those for the post-hoc analyses. Data concerning the CIQ and its relationship to a cultural identity measure are discussed. Chapter 4 closes with a discussion of how this information may be useful to, and relevant for, community service providers interested in HIV/AIDS prevention.

CHAPTER II

LITERATURE REVIEW

HIV/AIDS -- Definition and Statistics

AIDS is the eventual outcome of a virus, HIV. Because of the relationship between HIV and AIDS, the boundaries between the two are often obscured (Smiley, 1988). There are three main viral transmission modes: transmission through blood-to-blood, semen-to-blood, and vaginal/cervical secretion-to-blood contact (Winiarski, 1991). Although behaviors that increase an individual's risk for HIV infection include needle sharing during intravenous drug use, transfusion of infected blood and/or blood products, as well as sexual (vaginal and anal) intercourse, this review focuses only on sexual behaviors that increase one's chance for contracting HIV.

In interpreting the statistics concerning HIV and AIDS, there are two transmission characteristics that are important to note. First is the window period. It takes antibodies a few weeks to several months to develop. It is during this window period before antibodies develop that HIV remains undetected, although the individual is capable of transmitting the virus to others. Second, the median latency period between HIV infection and "full-blown" AIDS is ten years. Although an individual infected with HIV may be asymptomatic during this dormancy stage, again he/she is capable of transmitting the virus to others (CDC, 1993).

AIDS is reportedly uncommon among adolescents (Boyer & Hein, 1991; DiClemente, 1990; Friedman & Goodman, 1992). Between 1989 and 1990, however, the number of adolescent AIDS cases rose 40%. Currently, AIDS is the sixth leading cause of death among 15 to 24 year olds living in the United States (CDC, 1993; National Center for Health Statistics, 1990; Moore et al., 1991). The CDC (1994) reported 3,194 persons aged 13-19 and 12,272 persons aged 20-24 as infected with HIV; however, this organization cautions against strict interpretation of these data and state figures provide a "minimum

estimate of the number of persons known to be HIV infected (p. 25)." It is estimated that the number of adolescents who have HIV doubles every fourteen months (Boyer & Hein, 1991; Evans, Getz, & Raines, 1991; Vermund et al., 1989).

Specific statistics regarding actual adolescent and young adult AIDS cases point to an impending crisis for the adolescent population. As of December, 1996, the cumulative total of reported adolescent AIDS cases, for individuals aged 13-19, was 2,754 (CDC, 1996). Seventy-five percent of adolescent AIDS cases were reported to occur in individuals between the ages of 17 and 19 (Friedman & Goodman, 1992). Furthermore, the number of individuals between the ages of 20-24 and 25-29 reported to have AIDS was 21,097 and 81,807 respectively; these age groups combined represented 18% of the total number of AIDS cases. Because the median incubation period is ten years, it seems evident that many of those who fall into this age group (20-29) were infected during adolescence (Boyer & Hein, 1991; CDC, 1993; DiClemente, 1990; Rotheram-Borus & Koopman, 1991).

Risk-taking behaviors that include unprotected sex are important for understanding adolescent HIV transmission. In 1996 the CDC reported that risk-taking behaviors accounted for 58% of adolescents, aged 13-19, and 87% of late adolescents/young adults, aged 20-24, who were infected with AIDS. Although somewhat higher than the figure reported by the CDC, Friedman and Goodman (1992) reported for individuals in the 20-24 age group, 92% of HIV exposures were behavior-related exposures. Additionally, a greater percentage of adolescents, as compared to adults, have contracted HIV through heterosexual sex (Boyer & Hein, 1991; Catania et al., 1989).

Although statistics document tremendous vulnerability for adolescents, this age group generally appears impervious to the risk. Research documenting this lack of concern has focused on adolescents' knowledge of AIDS transmission, the attitudes of adolescents toward others who have AIDS, and the beliefs adolescents hold about the likelihood that they may contract HIV (e.g., Bell, Feraios, & Bryan, 1990; Brown, DiClemente, &

Beausoleil, 1992; Catania et al., 1989; DuRant et al., 1992; Kraft, Bostic, & Tallent, 1990; Ku, Sonenstein, & Pleck, 1992; Moore & Rosenthal, 1991a, 1991b; Ross, Caudle, & Taylor, 1991). Although HIV/AIDS knowledge should be one factor that is related to an individual adopting self-protective behaviors, evidence suggests that adolescents are not necessarily more likely to adopt AIDS-infection preventative behaviors based solely on knowledge about transmission and risky behaviors (DiClemente, 1990; Ross et al., 1991). Many adolescents have pre-existing attitudes that AIDS is tied to homosexuality, prostitution, and illegal drug use. Such attitudes can minimize the perception of personal risk thereby imposing an additional risk factor (Bell et al., 1990). Researchers have surveyed teenagers regarding changes in their sexual behavior because of the fear of AIDS (e.g., DiClemente, 1990; Kraft et al., 1990; & Ross et al., 1991). Kraft et al. (1990) reported that although approximately two-thirds of adolescents were worried about contracting AIDS, nearly half reported they made no behavioral changes because of knowledge of AIDS transmission.

HIV/AIDS Statistics: Native American Adults and Adolescents

The data obtained from the general population provides a basis for understanding the effect of AIDS in the Native American population. Given the paucity of data in the literature for Native Americans, statistics for both the Native American adult and the Native American adolescent are presented. As of December, 1996, the CDC reported a total of 1,569 cases of AIDS in the Native American population. It is important to note that, from 1989 to 1990, the Native American population had the greatest relative increase of new AIDS cases -- two to ten percent higher than reported in any other ethnic group in the United States (Chase, 1991; Metler, Conway, & Stehr-Green, 1991). Notably, Indian Health Service reports of HIV seroprevalence in Native American are higher than seroprevalence estimates reported by the CDC and are similar to reported estimates for the general population (Gideon, personal communication, October, 1992). It is assumed,

then, that the CDC number represents an under-reported figure. This underreporting may be partially due to the stigma associated with testing positive for HIV (e.g., that it is a "White Man's" or homosexual disease) as well as racial misclassification of Native Americans not living on reservations and the assimilation of Native Americans who are infected with HIV (Leib, Conway, Hedderman, Yao, & Kerndt, 1992). Distribution by exposure category is also distinct from other racial and ethnic groups. As compared to African Americans and Hispanic Americans, sexual contact accounted for Native American HIV infection more often than intravenous drug use (CDC, 1994; Sullivan, 1991).

Several factors that may influence the spread of HIV and AIDS vulnerability in the Native American population are important to note. These include the generally higher incidence rates of sexually transmitted diseases (STDs) in the Native American population, the median incubation period coupled with the relatively young age of Native Americans, the relatively low education level and employment rate of Native Americans, the level of poverty experienced by many Native Americans, and the social and physical environment many Native Americans experience (Hall, White, Bodenroeder, and Hess, 1990; Metler et al., 1991; Sullivan, 1991). Sullivan reported the incidence of STDs is generally higher for Native Americans than for non-Natives. Additionally, as many as 30% of Native American females who had gonorrhea were under the age of 20. Rhoades (1986) identified three factors that affect STD intervention and prevention efforts: the sometimes asymptomatic nature of the disease; an increase in the rate of sexual activity (especially involving multiple partners) of individuals in the high-risk age group (15-24 years old), and the high rates of STD re-infection. The factors related to higher STD rates for Native Americans are identical to those for HIV/AIDS. Additionally, having STDs may accelerate one's susceptibility to HIV infection by decreasing one's overall immunity. In an examination of AIDS vulnerability among Navajo Indians living on reservations, Sullivan (1991) discussed how urbanization and acculturation weakened traditional social norms that

previously limited sexual activity to prescribed partners and how these two influences changed the definition of permissible sexual behavior. Additionally, Hall, White, Bodenroeder, and Hess (1990), and Sullivan (1991) identified a pattern of circular migration that could potentially result in an individual, who contracted HIV while visiting an urban area, infecting other inhabitants in the community upon return to the home community.

As of December, 1996, a total of 17 Native American adolescents aged 13-19 and 378 Native Americans aged 20-29 had been diagnosed with AIDS (CDC, 1996). [This statistic is believed to be a serious underestimate of the total number of Native American adolescent AIDS cases. Among other data available to the author, Native American adolescents are reported to represent 10% of the total number of Native American AIDS cases in Oklahoma (Garren, personal communication, October, 1992).] As with Native American adult seroprevalence rates, HIV seroprevalence estimates of Native American adolescents by the CDC are assumed to be underestimates (Gideon, personal communication, October, 1992). Of greatest concern is the vulnerability of Native American youth to HIV infection. Influences discussed above for the non-Native population and Native American adults are applicable here (Hall, White, & Bodenroeder, 1989). Perhaps most indicative of increased vulnerability is that the median age of Native Americans is 22 years (the median age of the general population in the United States is 30 years); therefore, proportionately more Native Americans are in the AIDS high risk age group (Chase, 1991). Because of the long delay between HIV infection and symptom presentation, the expectation is of serious future problems.

Adolescent Sexuality -- Specific HIV/AIDS Vulnerability Via Sexual Behavior

Adolescence is often the age period when one's first intimate relationship develops, and decisions to engage in sexual intercourse may be required (Friedman & Goodman, 1992). The nature of intimate relationships in adolescence makes these individuals

especially vulnerable to HIV infection via sexual contact. Adolescents often believe these relationships will be long term and monogamous. Because they view their current sexual relationship as monogamous, adolescents are especially likely to believe that they are not at risk for contracting HIV and are more likely to justify non-use of condoms. In reality, serial monogamy is common during adolescence (Sorenson, 1973).

Adolescence is also a time for sexual experimentation. Fifty percent of males and 33% of females become sexually active between the ages of 15 and 17, and 85% of males and 70% of females engage in sex by the age of 19 (Bell et al., 1990; Evans et al., 1991; Friedman & Goodman, 1992; Kraft et al., 1990). More specifically, the median age of first intercourse is 16.1 for males and 16.6 for females. Nineteen percent of sexually active adolescents have had four or more partners during their lifetime (CDC, 1993). Coupled with a possible sense of invulnerability, early sexual activity presents an avenue for increased HIV infection (Boyer & Hein, 1991). Vulnerable behaviors include multiple sexual partners and oral, anal, and vaginal intercourse (Catania et al., 1989; CDC, 1993; Friedman & Goodman, 1992; Kraft et al., 1990; Moore & Rosenthal, 1991a; Moore & Rosenthal, 1991b). Adolescents who are sexually active place themselves at great risk through non-use of condoms. Studies have reported that fewer than 10% of sexually active adolescents consistently use condoms, and that those who tend to engage in high risk behaviors also tend to be less likely to use condoms (see Kegeles, Adler, & Irwin, 1988; Ku et al., 1992; Strunin & Hingson, 1987). Students who reported a greater number of partners also reported less condom use (CDC, 1993). No information regarding the topic of Native American adolescent sexuality was found in a review of the literature.

Prevention/Intervention Programs: Where Do We Go From Here?

In order to avoid an AIDS epidemic within the adolescent population (including Native American adolescents), education and prevention interventions specifically targeted to adolescents are necessary. An understanding of the processes per se and factors

involved in adolescent decision-making regarding those sexual behaviors that increase one's risk for AIDS is necessary in order that effective intervention and prevention programs may be devised and implemented. According to Friedman and Goodman (1992), many methods of communicating AIDS information to adults do not apply or are not relevant for adolescent AIDS education; programs need to be designed specifically to address the needs, developmental issues, and problems of adolescents. Suggestions for effective AIDS prevention programs might come from an empirical examination of existing programs. However, few programs have been adequately developed to target this vulnerable group. The expeditious development of existing programs often has resulted in programs lacking in theoretical underpinnings (Catania, Gibson, Chitwood, & Coates, 1990; Evans et al., 1991). Evans (1976) suggested that existing theory-based research that has focused on specific prevention strategies (e.g. smoking, drug use) may provide helpful insights and be easily adapted for AIDS/HIV prevention.

It is important to consider decision-making processes of adolescents in risk-taking situations when designing intervention/prevention programs. As compared to adults, adolescents may have relatively poorly developed decision-making skills. Such deficiencies may lead adolescents to engage in "faulty" decision-making that influences risk-taking (Frank, Green, & McNeil, 1993). The literature points to the assumption that the adolescent makes a decision prior to taking sexual risks (e.g., Brooks-Gunn & Furstenberg, 1989; Cvetkovich, & Grote, 1981; Furby & Beyth-Marom, 1992; Green, Johnson, & Kaplan, 1992). However, most adolescents are not well practiced at making decisions per se (and certainly not well practiced in making decisions regarding sexual behavior).

In addition to considering decision-making processes, those characteristics unique to the adolescent that make these individuals vulnerable to AIDS must be sufficiently understood. Characteristics identified in the literature include, but are not limited to, self-

efficacy in general and in sexual communication skills (Catania et al., 1989; Rosenthal, Moore, & Flynn, 1991; Rotheram-Borus & Koopman, 1991), peer influences and the individual's perception of these influences (DiClemente, 1990; Rotheram-Borus & Koopman, 1991), cognitive abilities including cognitive egocentrism and perception of future consequences (Boyer & Hein, 1991), cultural influences (DiClemente, 1990), and personality style (Levitt et al., 1991). According to DiClemente (1990), in order for prevention programs to be maximally effective, research must focus on providing a "comprehensive understanding of the psychological, social, maturational, and cultural determinants of HIV-related risk-taking behavior," (p. 14). Brandt (1988) and Evans (1991) emphasized that AIDS prevention programs must be sensitive to cultural components of the targeted adolescent population.

There is no reason to assume that the components given above for understanding AIDS prevention in the general adolescent population are not relevant for understanding AIDS prevention in Native American adolescents. However, when targeting programs for an ethnic minority group, the question of how and in what fashion cultural issues are relevant is of primary interest. According to Gollwitzer and Wicklund (1985), self-symbolizing definitions provide "conceptions of one's self as having a readiness to enact certain classes of behaviors" (p. 63). Fisher (1988) developed a model outlining possible effects of social influences of reference groups on AIDS-risk behavior. Thus, whether a Native American adolescent has appropriate role models may be a factor in risk-taking behavior. A review of the literature revealed no empirical studies examining the relationship among Native American socialization variables and HIV prevention.

Researchers have pointed to the importance of culture for the development of AIDS prevention programs (e.g., Brandt, 1988; DiClemente, 1990; Evans, 1991; Walters, Canady, & Stein, 1994). Walters et al. (1994) discussed the need for culturally responsive AIDS prevention programs and evaluation methods that do not presuppose relevant aspects

for a given culture. Stanton et al. (1995), delineated the need for culturally appropriate, theoretically grounded instruments for assessing the impact of cultural identification and involvement on HIV risk and developed a model to aid in the construction of culturally relevant instruments to assess HIV risk behaviors. In addition to the types of variables studied for the general adolescent population, it would appear appropriate to assess cultural identification and involvement in order to design effective education and prevention programs for Native American adolescents.

Decision-making Literature: Processes

The major problem in completing research on decision-making in adolescents is identifying reliable and valid measures of the decision-making process. The adolescent literature contains few studies focused on adolescent decision-making processes; specific measurement paradigms are rarely presented. In a review of models focused on adolescent decision-making processes, Schvaneveldt and Adams (1983) identified the usefulness of three types of decision-making: that based on intuition involving emotions, feelings, and fantasy; that based on an evaluation which meets minimal versus maximal criteria (the good enough strategy); and that based on rational thinking. Schvaneveldt and Adams posited that adolescents who are more able to defer gratification are more likely to use rational planning and the "good enough strategy," whereas adolescents who utilize the "intuitive style" may be more gratification-oriented. Stressing the ability to delay gratification and the conceptualization of risks and future consequences, Lewis (1981) studied how young, middle, and older adolescents approach legally regulated decisions as measured by whether these individuals were more likely to consult with peers, parents, or experts if required to make such decisions. Green, Johnson, and Kaplan (1992) conceived of adolescent decision-making processes within the context of Piaget's controlled variables paradigm as delineated by Linn (1983). In this model, individuals were asked to conceive of relevant variables and were provided by "experts" with a list of relevant variables prior

to making a decision in a risk-taking situation. Although several researchers have used specific decision-making paradigms, no comprehensive model of decision-making has been identified in the literature.

In contrast, the adult literature contains a systematic investigation of the processes involved in decision-making. Most of adult decision-making models assume individuals make rational choices based on probability. For example, according to the Expected Utility Theory (EUT) developed by von Neumann & Morgenstern (1944), decision-making is a rational process based on subjective probabilities -- an individual ascribes weights to various options based on the laws of probability. It has been argued, however, that cognitive biases and processing constraints interfere with the principles of decision-making proposed by such models (Simon, 1956; Tversky & Kahneman, 1986) and individuals often use extraneous information with which to evaluate decisions (Payne, 1982).

Kahneman and Tversky: Decision-Making Heuristics

In contrast, Kahneman and Tversky's (1979) Prospect Theory does not assume decisions are based on probability. Furthermore, these authors focused on choices made in risk situations. Prospects are options an individual evaluates when making a decision. The chosen prospect is assumed to be the option with the highest relative value. In addition to studying choices made in loss and gain situations, Kahneman and Tversky examined a variety of heuristic errors, the systematic errors generated by individuals when making decisions. Choices made in loss and gain situations and four of Kahneman and Tversky's heuristics are of special interest for understanding risk-taking decision-making in adolescence. These are: a & b) risk-avoidance/risk-seeking in somewhat similar and dissimilar probability choices; c) framing effects; d) conjunction fallacy -- the causal conjunction error; e) the disjunction effect. These are viewed as those most likely to influence the decision-making of adolescents. The underlying logic of this assumption is detailed below.

A basic precept underlying Kahneman and Tversky's Prospect Theory (1979) is that individuals make decisions differently depending on the risk or gain involved in the decision. Kahneman and Tversky established that, when choice options are relatively similar (i.e., 100% versus 50%) individuals tend to be more risk-seeking for situations involving a loss but tend to be more risk-averse for situations involving a gain. In contrast, when choice options are dissimilar (i.e., 100% versus 0.1%), findings were reversed. Given that many adolescent decisions involve choices to engage in risky behavior (i.e., sexual activity and contraceptive use), examining choice patterns in risk versus gain situations is a potentially valuable decision-making pattern to examine.

Framing, the manner in which information is presented to the individual, is one heuristic identified by Tversky and Kahneman (1981). According to Tversky and Kahneman, an individual's choices are contingent on how the material is presented, even when outcome options are identical. Given that adolescents are less fixed than adults in their decision-making patterns and that their decisions are more easily influenced than adults (Linn, de Benedictis, & Delucchi, 1982), this heuristic is meaningful for understanding adolescent decisions.

The conjunction fallacy, failure to consider one of the laws of probability, is a second heuristic identified by Tversky and Kahneman (1983). The conjunction fallacy occurs when an individual predicts the probability of two events occurring together is judged to be more likely than the probability of any one event occurring singly. In the causal conjunction error, individuals who disregard the principle are said to be relying on intuitive (irrational) reasoning versus extentional (rational) reasoning. Adolescents are often seen as being less rational and more apt to rely on intuitive reasoning as compared to adults (Harren, 1967; Simon, 1976). Therefore, it is important to incorporate this heuristic into the study of adolescent decision-making.

A third heuristic identified by Tversky and Shafir (1992), the disjunction effect, is a violation of Savage's Sure Thing Principle (STP). STP assumes that if individuals prefer Choice A to Choice B knowing that a particular event occurred or did not occur, then they should prefer Choice A to Choice B when they do not know whether that particular event has occurred. According to the disjunction effect, STP, "does not always hold, especially when the decision maker has different reasons for making the same decision: (Tversky & Shafir, 1992, p. 305). Paying to Know was one paradigm set employed by Tversky and Shafir to study the disjunction effect; the set included a disjunction (not knowing whether the event has occurred) and two non-disjunction paradigms (positive or negative outcome of the event). Each paradigm also included a choice to delay. Tversky and Shafir demonstrated that participants' decisions differed for the disjunction version versus the non-disjunction version. Furthermore, for the non-disjunction version, the difference between positive or negative event outcome was not relevant to decision-making. Compared to the nondisjunction version, in the disjunction version participants were more likely to delay their choice. It is commonly believed that adolescents tend to make decisions without having complete information about choice options or to postpone making decisions (Linn, 1983; Simon, 1969). Therefore, the disjunction effect is important in the study of adolescent decision-making.

The representativeness heuristic, judging the degree to which a particular case or event is representative of the general category or population and reflective of the most salient features of the general category, is a fourth heuristic identified by Kahneman and Tversky (1972). According to Kahneman and Tversky, when case A is highly representative of case B, individuals are likely to decide that case A originates from case B. If case A is not representative of case B, then the probability that A originates from B is judged to be low. For example, Kahneman and Tversky (1972) demonstrated the estimated probability that a given individual, Steve, works at a particular profession, as a

librarian, is determined by the degree to which Steve is judged to be representative of (similar to) the stereotype of librarians. Given the importance of conformity to group norms during adolescence (Brown, Eicher, & Petrie, 1986; Newman, 1982), this heuristic is meaningful for understanding adolescent decisions.

Decision-Making Literature: Factors Influencing Processes

Whereas the adult literature has generally focused on processes, the adolescent decision-making literature has focused more on factors that influence specific risk-taking behaviors. Linn (1983) stressed the importance of contextual (e.g., peer and cultural influences) and content (i.e., in what subject or topic area the individual is making a decision) factors in adolescent decision-making. Irwin and Millstein (1991), and Levitt, Selman, and Richmond (1991) presented models focused upon groupings of factors influencing adolescent decision-making in risk-taking situations. In addition to contextual and content factor groupings, a structural factor grouping (e.g., cognitive capacity, cognitive egocentrism, and personality variables) was discussed. Understanding the decision-making processes of adolescents may be necessary but insufficient because of the influence these three general factors may have on such processes. According to Linn (1983), whether one focuses on structure, context, or content depends on what problem is emphasized.

Structural Influences on Decision-Making Processes

Cognitive Ability and Limitations on Such Capacity in Adolescence

Cognitive ability is one structural variable that is a major influence on decision-making processes; additional structural variables may serve to limit cognitive capacity. There are several elements of formal operational reasoning that are relevant to decision-making in risk-taking: understanding future consequences of one's behavior, generating and evaluating alternatives, and inferring conclusions based on previously stated premises.

Formal reasoning involves inference where conclusions are based on previously stated premises as well as the ability to reason deductively with symbolic logic. This second order reasoning is often termed "reasoning about reasoning" (Overton, 1991, p. 914). The adolescent may have the cognitive capacity to employ such reasoning. However, earlier reasoning techniques may often be preferred modes of thought.

Generating and evaluating alternatives are components of cognitive capacity and efficiency that are important elements of formal operational reasoning. The individual who is functioning at the formal operational stage of development has the ability to generate hypothetical alternatives to a given solution as well as consider the consequences of combinations of behaviors (Overton, 1991). Existing literature on contraceptive usage suggests that cognitive deficits in the ability to generate and evaluate alternatives may exist in adolescents who fail to use contraceptives (Green, Johnson, & Kaplan, 1992; Johnson & Green, 1993; Rosenthal et al., 1991; Rotheram-Borus & Koopman, 1991). According to Rotheram-Borus and Koopman (1991):

The ability to anticipate the consequences of one's action, necessary for avoiding unsafe sexual practices, involves the development of formal operational thought...for most 18-year olds, though, formal operational thinking is not sufficiently developed for applying abstract principles about the transmission and prevention of HIV-infection to the immense variety of situations they encounter that present opportunities to engage in high-risk behavior (p. 32).

Often adolescents functioning at the formal operational level have the cognitive capacity to make non-risky decisions but continue to make risky decisions. Specific aspects influencing cognitive functioning, including time orientation, cognitive egocentrism, and cognitive style/personality variables, may influence formal operational thought in adolescents.

Time Orientation

During adolescence some individuals may be incapable or inexperienced at making decisions for future behavior. Often the ability to imagine and/or fully understand the implications for future consequences is not present in early or middle adolescence. Specifically, adolescents may lack the ability to encompass the past, present, and future into their thinking (Boyer & Hein, 1991). The ability to understand future consequences of behavior may exist, yet many adolescents may not employ this facet of formal operational thought with regard to a specific content area, e.g., their sexual behavior. Future consequences of risky behavior are perhaps less salient than immediate demands (e.g., gratification); an inability to take future consequences into account can increase an individual's chance for engaging in risk-taking behavior.

Cognitive Egocentrism

Linn, de Benedictis, and Delucchi (1982) found that adolescents who are capable of employing formal reasoning strategies often abandon these strategies to make decisions based on a limited set of criteria. One possible reason may be cognitive egocentrism (Elkind, 1967). According to Elkind, two constructs are helpful for interpreting egocentric constraints on adolescent cognitive functioning -- the imaginary audience, the belief that others are as admiring, critical, or are as concerned with our thoughts and behavior as we are, and the personal fable, the belief that we are unique and invulnerable (Elkind, 1967; 1981; Elkind & Bowen, 1979). For purposes of the present study, only the personal fable aspect of cognitive egocentrism will be examined. Elkind (1967) identified 2 aspects of the personal fable: uniqueness and invulnerability. Green, Morton, Starr, Jones, and Jaynes (1991) developed a measure of the personal fable in which 5 components were identified: egocentrism, invulnerability/breaking the rules, magical thinking, uniqueness, and independence of thought. Green and colleagues (Green et al., 1992; Johnson & Green, 1993) found that cognitive egocentrism influenced adolescent decision-making with regard

to contraceptive use; individuals who exhibited greater cognitive egocentrism performed more poorly on paradigms measuring decision-making.

Cognitive Style/Personality

An individual's cognitive style/personality also affects decision-making processes. While there are many aspects of cognitive style/personality (e.g., attributional style and sensation seeking) that are of likely importance, only sensation seeking will be examined. According to Zuckerman et al. (1978), individuals prefer an optimal level of arousal and will seek out stimulation in order to maintain this level. This optimal arousal level is stable within the individual and is considered to be a general trait. Zuckerman and colleagues (Zuckerman, Kolin, Price, & Zoob, 1964) developed an instrument to measure an individual's preference for risky, exciting, or unusual activities, stimuli or people (i.e., sensation-seeking). Researchers studying the relationship among sensation seeking variables and sexual activity variables have found that: a) sensation seeking individuals report engaging in a wider array of sexual activities and have a greater number of partners than non-sensation seeking individuals (Zuckerman, Tushup, & Finner, 1976) and b) sensation seeking individuals report engaging in more varied, exotic, and unusual fantasies than non-sensation seeking individuals (Litle & Zuckerman, 1986). Arnett (1990) and Arnett and Balle-Jensen (1993) found sensation seeking variables significantly predicted sexual activity without contraceptive use.

Contextual Influences on Decision-Making Processes

Contextual factors influence an individual's perception of the environment and affect reasoning performance (Linn, 1983). Sets of contextual variables identified as important for understanding adolescent decision-making include: a) peer and partner influences; b) parental influence and parenting styles; c) socialization; and d) culture. For purposes of the present study, only cultural involvement/identification and social mediators (i.e., peers and parents) influential for cultural involvement/identification are examined.

Cultural Influences and Social Mediators of Such Influences

Cultural influences affect knowledge acquisition, knowledge accommodation, and willingness to change behavior. According to Arnett and Balle-Jensen (1993), the culture in which an individual is socialized impacts on risk-taking in adolescents. Based on the theory of broad (promoting individualism and independence) versus narrow (promoting obedience and /or conformity) socialization (Arnett, 1992a, 1992b), these researchers hypothesized that broad socialization would lead to higher rates of risk behavior for adolescents, whereas narrow socialization would lead to lower rates.

Both peers and parents are social mediators important for upholding and imparting cultural values. Peers and parents provide adolescents access to cultural resources as well as limit serious cultural norm deviance and violation (Oetting & Beauvais, 1991). Adolescents are more likely than other age groups to be influenced by perceived referent group normative behaviors (DiClemente, 1990). Perceptions of group norms, even if they are incorrect, may have an extreme impact on adolescent behavior and may be more critical in determining an adolescent's behavior than actual peer norms (Rotheram-Borus & Koopman, 1991). Thus, the impact of the adolescent's social/cultural milieu is apparent.

Content Influences on Decision-Making Processes

Decision-making cannot be completely separated from or operate without content; the content of thought processes provide the evaluative tool for reasoning (Overton, 1991). Janis and Mann (1977) emphasized the need for future research systematically assessing the content of thought during decision-making in adolescents. According to Linn (1983), subject matter knowledge influences performance and, thus, must be represented in models of decision-making. Linn, de Benedictis, and Delucchi (1982) demonstrated that decision-making per se was specifically related to content.

Green and Runyan (1995) adapted Kahneman and Tversky's (1979) and Tversky and Kahneman's (1981, 1983) paradigms to measure the influence of content on systematic

errors in decision-making; the newly adapted paradigms contained content presumed to be more salient to adolescents. These authors found that errors made by individuals were significantly different for the content-adapted paradigms than for the original Kahneman and Tversky paradigms.

Decision-making -- Factors Related to AIDS-Specific

Sexual Risk-Taking Behavior

A search of the literature yielded three studies examining the relationship of factors to decision-making in adolescent risk-taking behavior relevant for the present study (Moore & Rosenthal, 1991a, 1991b; & Catania et al., 1989). These three studies demonstrated the relationship of cognitive egocentrism to perception of risk related to AIDS sexual behavior risk-taking. Moore and Rosenthal (1991a, 1991b) postulated cognitive egocentrism, specifically Elkind's (1967) notion of adolescents' perceptions of invulnerability in risk-taking, would contribute to a belief that it is unnecessary to take precautions against the possibility of contracting HIV. Contrary to their assumptions, these researchers found that individuals who engaged in moderate to high risk activity (no condom use for vaginal or anal sex) were more accurate in their perception of personal risk for contracting HIV than individuals who engaged in low risk activity (oral sex and/or consistent condom use). Findings of Catania and colleagues (1989) support Moore and Rosenthal's (1991b) conclusion that cognitively egocentric adolescents were accurate in their perception of vulnerability for contracting the AIDS virus.

Native American Decision-Making: Processes

Although there is little information available on the processes of decision-making in non-Native adolescents, there is virtually no research focused on decision-making processes in Native American adolescents. A review of the literature uncovered only one study ostensibly focused on processes in, or measurement of, Native American adolescent decision-making. Results of this study, however, focused on content differences.

Okwumabua and colleagues (Okwumabua, Okwumabua, & Duryea, 1989) compared decisions of Native American adolescents focused on health to decisions focused on social behavior. Findings indicated the decision-making process of Native American adolescents may not be the same for decisions involving an health focus versus a social focus.

Native American Decision-Making: Factors Influencing Processes

Factors influential for the decision-making process of Native American adolescents are assumed to be the same as those that influence the process of Anglo and other minority adolescents (Okwumabua et al., 1989); however, the relative influences of the factors may be different. Okwumabua et al. (1989) emphasized differential response patterns found in Native American adolescents may be due to divergent cognitive capacities among these individuals. One of the primary problems with assessing the influence of such factors on decision-making in minority youth, in general, and Native American adolescents, specifically, is that existing measures have been validated only with the majority culture (Schinke et al., 1985; Trimble, 1984). Bobo and colleagues (Bobo, Snow, Gilchrist, & Schinke, 1985) highlighted the importance of developing culturally appropriate decision-making measures for Native American adolescents.

Structural Influences

Three structural factors that may influence Native American adolescent decision-making in sexual risk-taking are of interest -- the Native American differential sense of time, cognitive egocentrism, and sensation seeking. Many Native Americans perceive the passing of time with less urgency than their Anglo counterparts (Forester & Little Soldier, 1978; Hull, 1982; Lazarus, 1982). Given that one of the critical components of formal operations is the ability to consider future consequences, this distinctive view of the sense of time may influence decision-making processes. Scott, Hynde, Hunt, and Weed (1979) and Hynde and Scott (1980) hypothesized that many Native Americans process temporal information in a concrete as compared to an abstract manner. This differential time

orientation may also influence the decision-making process of these individuals. In a study assessing the relationship between time orientation and risk-taking decision-making for Native Americans in late adolescence, Davis and Green (1995) found that individuals who were future oriented were less likely to take risks as compared to non-future oriented individuals.

Many Native Americans minimize the importance of the individual and emphasize the community; thus, personal factors influences on sexual behavior risk-taking may be different for traditional Native Americans as compared to more acculturated Native Americans. Research by Davis and Green (in press), supports the assumption that the personal factors influences sexual risk-taking decision-making of Native American adolescents. Thurman and Green (1995), found cognitive egocentrism to be a significant predictor of risky decision-making (i.e., inhalant abuse) for Native American adolescents.

Sensation seeking per se is a construct that has received little attention in the Native American literature. A review of the literature revealed one study assessing the relationship between sensation seeking and sexual risk-taking in decision-making of Native American adolescents. Davis and Green (1995) found a positive correlation between sensation seeking and sexual risk-taking decision-making of Native American adolescents.

Contextual Influences

Contextual influences, including cultural and community influences, on decision-making processes are of interest in the present study. Culture and society are often highly influential in the disciplining and socialization of Native American youth; participation in specialized rituals is often expected. Mason (1985) stated that experienced cultural behavior and language usage, as compared to merely observed cultural behavior, produce and reinforce a strong sense of identity that may psychologically inoculate against Native American adolescent risk-taking. Mason found that activities such as participation in tribal activities and liking to eat traditional foods were negatively correlated with alcohol and drug

use. Thurman and Green (1993) found lack of involvement with one's traditional culture was a significant predictor of inhalant use in Native American adolescents. Davis and Green (1995) found participation in tribal activities and ability to speak one's Native American language were related to decision-making patterns in sexual behavior risk-taking paradigms. Oetting & Beauvais (1991) stressed the importance of cultural involvement as a mechanism for providing cultural transmission, limiting cultural norm violation, and increasing psychosocial well-being. Assuming that engaging in culture-specific behaviors should be linked with cultural identification, these authors demonstrated a positive relationship between Native American cultural involvement and cultural identification. Given the demonstrated relationship between these 2 variables, it is reasonable to assume that cultural identity may also be related to decision-making. However, no studies were found, in a review of the literature, that have focused on Native American identification involvement as a mediator in risk-taking decision-making.

Content Influences

A review of the literature revealed no studies (other than Okwumabua et al., 1989) concerning content influences on decision-making in Native American adolescents. As described above, the Okwumabua et al. study demonstrated the importance of content in decision-making.

Summary

The focus of this literature review was twofold: first, to demonstrate the need to conduct empirically sound HIV/AIDS behavioral research for the Native American adolescent population and second, to propose an appropriate model by which to examine the problem. Beginning pages established the necessity for theoretically based HIV/AIDS prevention/intervention programs for Native American adolescents and examined culturally and developmentally specific topics. The review continues by proposing that understanding decision-making processes per se and factors that influence such processes

is paramount for developing effective intervention and prevention programs. The Kahneman and Tversky decision-making model appears particularly well suited for examining the process of decision-making because it assumes that people make different decisions depending on whether the decision is presented as a gain or as a loss. Structural factors (such as one's understanding of time, cognitive egocentrism, and sensation seeking) and contextual factors (including cultural and community influences) are considered relevant mediators for decision-making.

Thus, in order for prevention programs to be maximally effective, research must focus on providing a "comprehensive understanding of the psychological, social, maturational, and cultural determinants of HIV-related risk-taking behavior" (DiClemente, 1990, p. 14). Rigorous studies are needed to assess the decision-making processes of Native American adolescents and to better understand how to help these adolescents exercise formal operational thinking and promote the evaluation and use of alternatives. Studies that examine how psychological factors such as cognitive egocentrism and culture influence Native American adolescents' decisions to engage in sexual risk-taking behavior are also needed. It is important to consider these and other variables, before designing HIV/AIDS intervention and prevention strategies that promote health and prevent disease.

CHAPTER III

DESCRIPTION OF THE PRESENT STUDY

Given the necessity to comprehend the decision-making processes of Native American adolescents pertaining to sexual risk-taking, this study measured decision-making (i.e., errors in judgment) in Native American late adolescents in the content arenas most salient and relevant to AIDS vulnerability (AIDS-related sexual risk-taking). Structural factors (cognitive egocentrism, time perspective, and sensation seeking), contextual factors (cultural involvement and cultural identification), and demographic variables (Native American blood quantum, gender, age, size of hometown, parents' education, and academic performance) that potentially influence Native American adolescent decision-making in AIDS-related sexual risk-taking were examined. HIV/AIDS-related sexual risk-taking behavior is the specific content arena that was examined.

Hypotheses

Hypotheses Regarding Demographic Variables

Given the preliminary findings of Davis and Green (1995) it is predicted that: a) ACT scores will correlate negatively with risk-seeking for gain situations in dissimilar probability situations; b) being female will correlate negatively with risk-seeking for loss situations in similar probability choices; c) higher GPA will correlate negatively with risk-seeking for loss situations in dissimilar probability choices and; d) Native American adolescents who have a greater degree of Native American blood will be risk-avoidant for gain situations in dissimilar probability choices and risk-seeking for loss situations in similar probability choices.

Hypotheses Regarding Structural Variables

Given the findings of Green and colleagues (1992; 1993), it is predicted that subscales of the Personal Fable Scale will correlate with greater risk-taking in loss

situations with intuitive reasoning and with nonprobabilistic decision-making heuristic errors as measured by the sexual behavior/contraceptive use content-adapted Kahneman and Tversky and Tversky and Shafir paradigms. Given the findings of Davis and Green (1995), it is predicted that: a) the cognitive egocentrism subscale of the Personal Fable Scale will correlate positively with risk-seeking for gain situations in dissimilar probability choices and with risk-seeking for loss situations in similar probability choices and; b) the uniqueness subscale of the Personal Fable Scale will correlate positively with risk-seeking for gain situations in dissimilar probability choices.

Given the findings of Zuckerman (Zuckerman, Tushup, & Finner, 1976; Litle & Zuckerman, 1986) and Arnett (Arnett, 1990, 1994; Arnett & Balle-Jensen, 1993), it is predicted that the Sensation Seeking Scale will correlate with intuitive reasoning and nonprobabilistic decision-making heuristic errors as measured by the sexual behavior/contraceptive use content-adapted paradigms (e.g., Kahneman & Tversky, 1972; 1979; Tversky & Kahneman, 1983; 1986; Tversky & Shafir, 1992). Given the findings of Davis and Green (1995), it is predicted that: Sensation Seeking will correlate positively with risk-seeking for loss situations in similar probability.

Given the findings of Zimbardo (1992), it is predicted that subscales of the STPI will correlate with intuitive reasoning and nonprobabilistic decision-making heuristic errors as measured by the sexual behavior/contraceptive use content-adapted Kahneman and Tversky and Tversky and Shafir paradigms. Given the findings of Davis and Green (1995), it is predicted that future time orientation will correlate negatively with risk-seeking for gain situations in similar probability choices and for loss situations in dissimilar probability choices.

Hypotheses Regarding Contextual Variables

Given the preliminary findings of Davis and Green (1995), it is predicted that the cultural involvement measure will correlate with intuitive reasoning and nonprobabilistic

decision-making heuristic errors as measured by the sexual behavior/contraceptive use content-adapted Kahneman and Tversky and Tversky and Shafir paradigms. Specifically,:

- a) Native American adolescents who don't speak their Native language will be risk-seeking for gain situations in both similar and dissimilar probability choices and;
- b) Native American adolescents who are more active in tribal customs will be risk-averse for gain situations in dissimilar probability choices.

Considering that the relationship between cultural identity and sexual risk-taking decision-making has not been previously addressed in the literature, general hypotheses cannot not be generated. However, it is assumed that if the relationship between cultural involvement and cultural identification is true, then one would expect a positive relationship between cultural identification and "better decision-making." This aspect of the present study can be considered exploratory, for the purpose of generating hypotheses for future research regarding the relationship between cultural identification and decision-making related to sexual risk-taking. In addition to these specific hypotheses regarding and comparisons of contextual variables, a factor analysis of the Cultural Involvement Questionnaire will be conducted in order to better understand and further develop this instrument.

Method

Participants

A total of 79 students participated in the study: 28 Native American students attended Oklahoma State University and 51 Native American students attended Northern Arizona University. The mean age of participants was 23.5 years, and the mean degree of Native American blood was 57.1%. Overall, the sample indicated a high level of involvement in traditional activities. The majority of students indicated they participate in tribal celebrations (78%), culture meetings (75%), oral traditions (73%), and Native spiritual practices (59%). Most students reported they either speak their Native language

(31%) or some of their Native language (44%). Seventy-three percent reported that both parents are Native American and 25% of parents are from the same tribe; 65% reported that all of their grandparents are (were) Native American. Consistent with this traditional orientation, participants were from largely rural communities (63% reported they are from communities of 10,000 people or less, an additional 23% are from communities with populations between 10,000 and 30,000). Generally, participants were high academic-performing students whose parents are generally well educated ; 64% reported their fathers, and 66% reported their mothers, had attended some college or held a baccalaureate or advanced degree. Subject mean American College Test (ACT) score was 20.83, and mean High School Grade Point Average (GPA) was 3.12 (on a 4 point scale). Participants were generally in financial need: 81% reported they applied for Federal Financial Assistance; 80% of those who applied for financial aid were awarded such assistance.

Materials

Each subject was furnished with a packet of questionnaires. The packet consisted of a demographic questionnaire and six sets of instruments designed to assess participants' decision-making processes, cultural involvement, cultural identification, time orientation, cognitive egocentrism, and arousal optimization. (sensation seeking). The packets differed only for the decision-making process measures.

Decision-Making Process Measures

In order to assess decision-making processes, six sets of dichotomously scored sexual behavior/contraceptive usage content-adapted paradigms (adapted from Kahneman & Tversky and Tversky and Shafir) were used. The paradigms measured decision differences in gain versus loss situations for both somewhat similar and dissimilar probability choices (100% versus 50%; 100% versus 0.1%) and four different heuristics: a) the framing effect; b) use of probability estimates in decision-making -- the conjunction fallacy-causal conjunction error; c) the disjunction effect and; d) the representativeness

heuristic. Two forms of packets were used. Packet A will contained the following paradigms: a) one risk-seeking paradigm, gain situation (100% versus 50%); b) one framing paradigm; c) one paradigm to assess the causal conjunction error; d) the second risk-seeking paradigm, gain situation (100% versus 0.1%); e) one disjunction paradigm to assess the disjunction effect and; f) one paradigm to assess the representativeness effect. Packet B contained the following paradigms: a) one risk-adverse paradigm, loss situation (100% versus 50%); b) the second framing paradigm; c) one paradigm to assess the causal conjunction error (identical to the paradigm included in Packet A); d) the second risk-adverse paradigm, loss situation (100% versus 0.1%); e) one non-disjunction paradigm to assess the disjunction effect (based on characteristics of the disjunction paradigm set requiring subdivision of the non-disjunction paradigm, Packet B included 2 forms of the non-disjunction paradigm -- win/lose) and; f) one paradigm to assess the representativeness effect (identical to the paradigm included in Packet A). Refer to Appendix A for a copy of these instruments.

Cultural Involvement

A review of the literature revealed no objective, quantitative measures of cultural involvement in Native Americans indicating a need for such an instrument. A draft of the Cultural Involvement Questionnaire (CIQ) was developed based on the assumption of a positive relationship between subjective measures of cultural identity (e.g., Oetting & Beauvais, 1987, 1991) and cultural involvement as well as based on items that appeared in a literature review.

The CIQ was reviewed/pretested using three different groups. First, two Native lay-persons, both of whom were very active members of their Native communities in Oklahoma, were asked to edit and provide suggestions regarding the instrument and specific items. Their comments and suggestions were incorporated into the instrument.

Second, a group of 10 Native lay-persons residing in Oklahoma were asked to complete the instrument and, when finished, to provide suggestions regarding the instrument and specific items. Feedback from this group was incorporated into the instrument.

Third, 50 Native professionals from across the country-- psychologists, therapists, counselors, educators, and tribal leaders -- were asked to assist in the development of the CIQ. A copy of the instrument was mailed to these individuals with instructions asking them to: a) first provide answers to each item on the instrument and b) then provide comments, suggestions, and feedback regarding the instrument. Questionnaires were returned by 19 (38%) individuals. Feedback provided by this group was used to further refine the instrument.

In order to pilot the instrument and determine feasibility of use, and understandability, of the instrument with college aged Natives, the instrument was administered to 19 Native students at OSU. Participants were recruited through Native American student service organizations and tested as a single group in a classroom. Consent forms were given to each individual upon entering the testing room. After completing the consent form, the CIQ was given to each individual. Standardized instructions were read, and participants were asked to complete all items. The decision was made not to change the instrument as it appeared usable with these college-age participants.

Within the context of the present study, concurrent validity of the CIQ with the CID was conducted (see results). Preliminary reliability data were gathered. However, given the need to use the CIQ with a larger sample before identifying final items, additional data are needed to further assess the reliability of this instrument.

Cultural Identification

The Cultural Identification (CID) measure is a 4-point Likert-type scale developed by Oetting and Beauvais (1991) to assess the degree to which an individual adheres to the

customary beliefs and values of one's identified culture. Participants are asked to rate how well each of the statements describes themselves or their family. The 4 items comprising the CID were selected from the original cultural identification scale developed by Beauvais, Oetting, Chavez, and Swain (1987). Internal consistency for the 4 item scale was reported as .89 for Native American identification. Concurrent validity was reported as correlating adequately with other statements indicative of enculturation of the Native American culture ($r = .39$ to $r = .74$). Discriminant validity between Anglo-American identification items and Native American cultural identification items was acceptable ($r = .18$ to $r = .26$).

Time Perspective

The Stanford Time Perspective Inventory (STPI -- Zimbardo, 1992) was used to assess time orientation. The STPI is a 5-point (1 = very untrue to 5 = very true) Likert-type scale comprised of 38 items. Individuals are asked to rate how well each of the 38 statements describes him or herself. Four scales, Future, Past, Present Hedonistic, and Present Fatalistic, are scored. Each scale score is the mean of a subset of individual items. Higher scores on one scale relative to the other scales reflect higher likelihood an individual has a particular time orientation. No reliability or validity data are published for this measure.

Cognitive Egocentrism

The Personal Fable (PF) instrument (Green et al., 1991) is comprised of 43 items. Individuals indicate on a 5 point Likert-type scale, ranging from strongly agree (4) to strongly disagree (0), to what extent each item represents their thinking. Five scales, Egocentrism, Uniqueness, Magical Thinking, Impulsivity/Breaking the Rules, and Independence, are scored. Each scale score is the total sum of the scale items. With the exception of Independence, higher scale scores reflect higher levels of cognitive egocentrism. Reported internal consistency was acceptable for each scale (ranging from .51 to .75). The intercorrelation of scales ranged from .02 to .21 revealing good to

adequate relative independence of scales. Refer to Appendix D for a copy of this instrument.

Sensation Seeking

The Sensation Seeking Scale (SS), Form V (Zuckerman, Eysenck, & Eysenck, 1978) contains four distinct components (scales) of sensation seeking. These are Thrill and Adventure Seeking (TAS), Experience Seeking (ES), Disinhibition (DIS), and Boredom Susceptibility (BS). Individual scales are comprised of the sum of a subset of individual items. Individuals indicate, on a forced-choice dichotomous scale, which options most describe their likes or feelings. Reliability and validity data are not published for this instrument.

Procedure

Participants were recruited through Native American student services, introductory psychology classes, and advertisement; they were tested in groups. Classrooms were reserved for data collection. Consent forms were given to each individual upon entering the testing room. After completing the consent form, a packet was given to each individual. Standardized instructions were read, and participants were asked to complete all forms. To ensure randomization, every other participant tested was given Packet A, the remaining participants alternately were given 1 of the 2 forms of Packet B. The average time taken to complete packets was 30 minutes.

Results

Sample Differences

Initial analyses were conducted to ascertain differences between NAU and OSU students for all of the variables. Chi-square and t-test analyses revealed nine statistically significant differences between the 2 groups. Seven of these highlighted differences in Native patterns: a) blood quantum [$t(77, 79) = -5.53, p < .0001$]; students from NAU had a higher blood quantum ($M = 76.6; SD = 42.61$) than did students from OSU ($M = 21.64; SD =$

41.67)]; b) number of parents who are Native [$t(77) = 1.84, p < .002$; students from NAU had a greater number of Native parents ($M = 1.86, SD = .35$) than did students from OSU ($M = 1.5; SD = .51$)]; c) number of grandparents who are (were) Native [$t(76) = -5.53, p < .0001$; students from NAU had a greater number of Native grandparents ($M = 3.69; SD = .74$) than did students from OSU ($M = 2.44; SD = 1.25$)]; d) participation in tribal activities [$t(77) = -3.27, p < .002$; students from NAU participated in a greater number of tribal activities ($M = 10.57; SD = 5.05$) than did OSU students ($M = 7.43; SD = 5.71$)]; e) participation in culture meetings [$t(77) = -2.19, p < .033$; students from NAU were more likely to attend culture meetings ($M = 3.88; SD = 2.05$) than students from OSU ($M = 2.32; SD = 2.0$)]; f) whether they speak their tribal language [$X^2(2, N = 79) = 24.32, p < .0001$; students from NAU were more likely to speak at least some of their tribal language ($N = 47$) than OSU students ($N = 12$)]; and g) whether their parents are from the same tribe [$X^2(1, N = 61) = 5.23, p < .022$; parents of NAU students were more likely to be from the same tribe ($N = 38$) than students from OSU ($N = 8$)]. The remaining two differences were as follows: a) hometown size [$t(77) = 2.76, p < .019$; students from OSU were generally from a larger hometown ($M = 4.18; SD = 2.21$) than students from NAU ($M = 3.04; SD = 1.46$)]; b) high school GPA [$t(69) = 2.61, p < .005$; students from OSU had a higher high school GPA ($M = 3.36; SD = .35$) than students from NAU ($M = 3.04; SD = .55$)]. Table 1 presents means, standard deviations, and significance levels for these sample differences.

Insert Table 1 about here

Additionally, initial analyses were conducted to ascertain demographic differences between students who received Packet A and those who received Packet B. Chi-square and t-test statistical analyses revealed no significant differences between the groups for any of

the demographic variables.

Demographic Variables

Pearson product moment correlations with Bonferroni correction were used to assess hypothesized relationships between demographic variables (ACT score, gender, high school GPA, and blood quantum) and Kahneman and Tversky decision-making paradigms (dissimilar-gain, similar-loss, and dissimilar-loss). No significant correlations were found among these variables.

Structural Variables

Pearson product moment correlations with Bonferroni correction were used to assess hypothesized relationships between structural variables and Kahneman and Tversky decision-making paradigms. Two Personal Fable subscales (Egocentrism and Uniqueness) were hypothesized to have significant relationships with Kahneman and Tversky paradigms. The one hypothesized relationship for Uniqueness that with the dissimilar-gain Kahneman and Tversky paradigm was significant [$r(1, N = 78) = -.34, p < .04$]. Participants who viewed their thoughts as unique (different from others) were more likely to be risk-seeking for gain situations in dissimilar probability choices. Neither hypothesized relationship between egocentrism and two Kahneman and Tversky paradigms (dissimilar-gain & similar-loss) was significant.

Relationships between one Stanford Time Perspective Inventory subscale (Future Orientation) and two Kahneman and Tversky paradigms (similar-gain & dissimilar-loss) were predicted. Only one of these was significant, that with the dissimilar-loss paradigm [$r(1, N = 79) = -.37, p < .022$]. Participants who viewed themselves as having a future time orientation were more likely to be risk-seeking for loss situations in dissimilar probability choices.

Contextual Variables

Pearson product moment correlations with Bonferroni correction were used to assess the relationships between six contextual variables (CIQ5 - Self-speak Language, CIQ7 - Participation in Celebrations, and the four CID items pertaining to Native identity) and each of two Kahneman and Tversky decision-making paradigms (similar-loss and dissimilar-gain). Only one of these correlations was significant, that between the cultural identity item -- success in the Native way of life and the similar-gain paradigm [$r(1, N = 79) = -.41, p < .010$]. This finding was in the opposite direction than that predicted; individuals who view themselves as successful in the Native way of life were more likely to take a risk in a gain situation when probability choices are similar.

Regression Analysis

Multiple regression techniques were used to determine if decision-making could be predicted by specific predictor variables. Sets of multiple regression analyses were performed with each of the four Kahneman and Tversky gain and loss paradigms as outcome variables. One set of predictors included demographic, structural, contextual () variables, and the sub-sample (a total of 11 variables). A second included demographic, structural, and contextual (CIQ 5 & 7, empirical factors -- refer to factor analysis section below) variables (a total of 14 variables). A third set of predictors included demographic, structural, and contextual (CIQ 5 & 7, theoretical factors) variables (a total of 14 variables). None of the prediction equations yielded significance.

Factor Analysis

In order to reduce the number of variables (items) on the Cultural Involvement Questionnaire, factor analyses were carried out. Two different factor analyses were completed; one based on the empirical data, the other on theoretical assumptions.

As the data were collected on only 79 participants, a factor analysis of 32 items is considered unstable. Although the analysis could be carried out (i.e., that is minimally

meets the criteria of one more participant than the number of variables), it does not meet the acceptable criteria of four to five times the number of participants as variables. For this reason the second factor analysis, based on theoretical assumptions regarding the clustering of items was completed.

Experimental Factor Analysis

An iterated principal factor analysis scree plot of eigenvalues indicated that the potential factor solutions ranged from 1 to 4. Principal axes factor analysis with varimax rotation was applied to the numerically coded data. The most desirable solution (accounts for the most variance with the smallest number of factors) appeared to be the four-factor solution. The eigenvalues of the reduced correlation for the four factors were 7.55, 1.89, 1.62, and 1.09, respectively. Saliency of item loadings on a factor was based upon two criteria: a) a loading value of .35 or greater, and b) the difference between the salient loading and the largest loading on any other factor was at least .20. Twenty-four of the 32 items were found to have salient loadings on one of the four factors. The factors were labeled: a) Cultural Tradition; b) Cultural Knowledge; c) Problem Assistance; and d) Time with Tribe. Factor loadings are presented in Table 2. Table 3 presents the items for each of the four factors.

Insert Table 2 about here

Insert Table 3 about here

Theoretical Factor Analysis

Based on the literature, assumptions were made regarding which items would cluster together. Each of the 32 total numerically coded items were placed in one of four

potential factors. Factor analyses were conducted separately for each of these factors. The number of variables (items) in each of these analyses ranged from 11 to 3; thus, in all four analyses the criteria of four to five times the number of participants as variables was met. The potential factors were labeled: a) Cultural Involvement; b) Language; c) Problem Assistance; and d) Native Friends. Table 4 presents questionnaire items for the theoretical factors.

Insert Table 4 about here

An iterated principal axes factor analysis scree plot of eigenvalues was conducted on each of the theoretically derived factors. Saliency of item loadings on a factor was based upon two criteria: a) a loading value of .35 or greater, and b) the difference between the salient loading and the largest loading on any other factor was at least .20.

Potential factor solutions for the Cultural Involvement factor analysis ranged from one to five. Principal axes factor analysis with varimax rotation was applied to the numerically coded data. The most desirable solution appeared to be the four-factor solution. The eigenvalues of the reduced correlation for the four factors were 4.69, 1.33, .86, and .62, respectively. For the two factors with eigenvalues greater than one, six of 16 items were found to have salient loadings on one of these two factors. Factor loadings for these two factors are presented in Table 5.

Insert Table 5 about here

Potential factor solutions for the Language factor analysis ranged from one to five. Principal axes factor analysis with varimax rotation was applied to the numerically coded data. The most desirable solution appeared to be a three-factor solution. The eigenvalues

of the reduced correlation for the three factors were 2.7, .86, and .44, respectively. For the factor with an eigenvalue greater than one, three of six items were found to have salient loadings on the factor. Factor loadings for this factor are presented in Table 6.

Potential factor solutions for the Problem Assistance factor analysis ranged from one to three. Principal axes factor analysis with varimax rotation was applied to the numerically coded data. The most desirable solution appeared to be the two-factor solution. The eigenvalues of the reduced correlation for the two factors were 1.48 and 1.06, respectively. All five items were found to have salient loadings on one of the two factors. Factor loadings for this factor are presented in Table 7.

Potential factor solutions for the Native Friends factor analysis ranged from one to three. Principal axes factor analysis with varimax rotation was applied to the numerically coded data. The most desirable solution appeared to be the two-factor solution. The eigenvalues of the reduced correlation for the two factors were 1.04 and .40, respectively. Two of the four items were found to have salient loadings on the factor with an eigenvalue greater than one. Factor loadings for this factor are presented in Table 8.

Insert Tables 6, 7, & 8 about here

Post hoc Analyses

Exploratory post hoc analyses were conducted in order to provide direction for future research. Pearson product moment correlations with Bonferroni correction were used to assess relationships among demographic variables (ACT scores, gender, high school GPA, and blood quantum) and Kahneman and Tversky decision-making variables (conjunction fallacy, paying to know, and representativeness) for which no relationship had been previously hypothesized. No significant correlations were found among these variables.

Pearson product moment correlations were used to assess relationships among structural variables (Personal Fable -- Uniqueness and Egocentrism; Sensation Seeking - total score; and Future Time Orientation) and Kahneman and Tversky paradigms (conjunction fallacy, paying to know, and representativeness) for which no relationship had been previously hypothesized. No significant correlations were found among these variables.

Pearson product moment correlations were used to assess relationships among two contextual variables (Self-Speak Language and Participation in Celebrations) and each of three Kahneman and Tversky paradigms (conjunction fallacy, paying to know, and representativeness) for which no relationships had been previous hypothesized. No significant correlations were found among these variables.

Pearson product moment correlations, used to assess relationships between the four empirically derived factors (items in each factor summed) of the CIQ (Cultural Tradition, Cultural Knowledge, Problem Assistance, and Time with Tribe) and all of the Kahneman and Tversky decision-making paradigms (similar-gain, dissimilar-gain, similar-loss, dissimilar-loss, conjunction fallacy, representativeness, and paying to know), revealed no significant correlations. Pearson product moment correlations used to assess relationships between the four theoretically derived factors of the CIQ (Cultural Involvement, Language, Problem Assistance, and Native Friends) and each of the Kahneman and Tversky decision-making paradigms (similar-gain, dissimilar-gain, similar-loss, dissimilar-loss, conjunction fallacy, representativeness, and paying to know) revealed no significant correlations.

Pearson product moment correlations were used to assess relationships (i.e., concurrent validity) between the CIQ and the CID. Overall concurrent validity with the CID was adequate. The overall correlation between the two measures was significant [$r(1, N = 75) = .71, p < .0001$]. Collectively, fifty-two percent of the variance was shared between the CIQ and the CID. Given the overall correlation between the two measures,

correlations between each CID item measuring Native American cultural identity and each CIQ empirically derived and each theoretically derived factor was warranted.

Concurrent validity between each CID item measuring Native identity and each of the empirically derived factors was examined. Refer to Table 9 for a summary of these. The empirical factor Cultural Tradition was significantly correlated with all four CID items measuring Native American identity ($r = .58$ to $.19$). Participants who viewed themselves as involved in the tradition of their culture were also likely to view themselves as identified with their culture. The empirical factor Time with Tribe was significantly correlated with one of four CID items measuring Native American identity ($r = .23$). Participants who frequently spend time with other tribal members identified themselves as following the Native way of life.

Insert Table 9 about here

Concurrent validity between each CID item measuring Native identity and each of the theoretically derived factors was examined. Refer to Table 9 for a summary of these. The theoretical factor Cultural Involvement was significantly correlated with all four CID items measuring Native American identity ($r = .48$ to $.35$). Participants who viewed themselves as highly involved in their culture were also likely to view themselves as identified with their culture. The theoretical factor Language was significantly correlated with three of four CID items measuring cultural identity ($r = .32$ to $.22$). Participants who speak their Native language or reported that a Native language was spoken in the home viewed themselves as identified with their culture. The theoretical factor Problem Assistance was significantly correlated with three of four CID items measuring cultural identity ($r = .26$ to $.23$). Participants who reported that they would more likely to talk to a

tribal leader/healer when they had a problem/illness viewed themselves as identified with their culture.

CHAPTER IV

DISCUSSION

Decision-making Performance

For the Kahneman and Tversky model, the similar and dissimilar gain paradigms are compared directly to the loss paradigms. Notably, an examination of performance on decision-making paradigms per se indicates a general concordance in decision-making patterns between participants in the present study and participants in the Davis and Green (1995) study. For the similar probability gain paradigm, some disparity was found between the present study (49%) and choices found by Davis and Green (33%); for the similar probability loss paradigm, the response pattern was virtually identical for the present study (47%) and Davis and Green (43%). In both studies, participants were slightly more likely to avoid taking a risk in a loss situation than in a gain situation. For the dissimilar probability paradigm gain situation, some disparity was found between the present study (39%) and choices found by Davis and Green (67%); for the dissimilar probability loss paradigm, virtually no difference was found between the present study (28%) and the Davis and Green (24%) study. In both cases, participants were more likely to avoid taking a risk in a loss situation than in a gain situation. For the framing paradigms, minimal disparity was found. Participants in both studies were not influenced by framing effects. For the conjunction fallacy, a pattern reversal was revealed. In the present study, a larger percentage of participants used intuitive reasoning as compared to participants in the Davis and Green study (1995). The present study's results were also comparable to Davis and Green's companion study conducted with non-Natives for all paradigms except the conjunction fallacy. In general, data in the present study are consistent with the general literature that adolescents have poorly developed decision-making skills that often lead to "faulty" decision-making that is opportunistic for risk-taking (Frank, Green, McNeil; 1993) and the literature that adolescents may have cognitive

deficits in formal operational thought that leads to decreased ability to make complex decisions concerning health risks (Green, Johnson, & Kaplan, 1992; Johnson & Green, 1993; Rotheram-Borus & Koopman, 1991).

Demographic Variables

The hypotheses that ACT scores, gender, high school GPA, and blood quantum would be significantly related to sexual behavior decision-making were not supported. In addition to nonsignificant findings related to high school GPA and ACT score hypotheses, post hoc analyses examining the relationship between high school GPA and ACT score and the remaining three Kahneman and Tversky decision-making paradigms also revealed no significant relationships. The predictions related to high school GPA and ACT scores were based on earlier findings that high school GPA and ACT were significant predictors for decision-making in Native American students at OSU (Davis & Green, 1995). One major consideration for understanding the nonsignificant results may be the restricted range (i.e., dichotomous scoring) inherent in the scoring of the gain and loss paradigms. Other possible explanations for the lack of significant findings are as follows: For high school GPA, the group means were significantly different. With different means yet smaller numbers for the OSU group, the relationship patterns found for the OSU subsample were likely masked by the larger NAU subsample. In fact, an examination of the correlations between GPA and dissimilar-loss separately for the two groups indicates a correlational value of .37 for the OSU subsample versus one of -.24 for the NAU subsample. For ACT, the group means were not significantly different from each other and the correlation between ACT and dissimilar-loss was not noticeably different for the two groups. Thus, at least for the high school variable, the lack of significance could be related to sample size and power and/or differences in the two groups.

In addition to nonsignificant findings related to the gender hypothesis, post hoc analyses examining the relationship between gender and the remaining three Kahneman and

Tversky decision-making paradigms also revealed no significant relationships. The prediction related to gender was based on an earlier finding that gender was a significant predictor for decision-making in Native American students at OSU (Davis & Green, 1995). No significant gender differences were found between the two samples. Furthermore, the values of the correlation between gender and similar-loss were not noticeably different for the two groups (OSU versus NAU) with that for OSU of a low value ($r = .16$). Clearly the findings of Davis and Green regarding gender could not be supported in the present study.

In addition to nonsignificant findings related to the blood quantum hypotheses, post hoc analyses examining the relationship between blood quantum and the three remaining Kahneman and Tversky decision-making paradigms also revealed no significant relationships. The predictions related to blood quantum were based on an earlier finding that blood quantum was a significant predictor for decision-making in Native American students at OSU (Davis & Green, 1995). As for GPA, possible explanations center around subsample differences. Blood quantum subsample differences were found, with the mean for the NAU group being significantly higher than that for the OSU group. Differences also were found in the correlations between blood quantum and dissimilar-gain (OSU = $-.08$; NAU = $.22$) and blood quantum and similar-loss (OSU = $.52$; NAU = $-.08$).

The possibility exists that subsample differences explain some of the lack of replicate findings. It is also possible that the findings of Davis and Green (1995) may have been spurious: it is the only study found in the literature that examines the relationship between the demographic variables of cognitive capacity (hypothesized in this study as ACT scores and high school GPA), blood quantum, and gender and decision-making in Native students. Additional studies with different tribal groups are needed to provide insight into these associations. These studies might focus on alternate measures of decision-making.

Structural Variables

The hypotheses that structural variables, specifically Personal Fable, Sensation Seeking, and Stanford Time Perspective Inventory variables, would be significantly related to sexual behavior decision-making were partially supported. The predictions related to Personal Fable were based on an earlier finding that two subscales, Egocentrism and Uniqueness, were significant predictors for decision-making in Native American students at OSU (Davis & Green, 1995). Students who endorsed the attribute of having unique thoughts were more likely to take a risk when given the opportunity to gain additional money to buy medicine to treat HIV/AIDS than were students who did not view their thoughts as unique. For the relationship between Uniqueness and dissimilar-gain, the value for the OSU group is .84, significantly different than that for the NAU group ($r = -.03$, $p = .05$). Post hoc analyses examining the relationship between Uniqueness and the remaining three Kahneman and Tversky decision-making revealed no significant relationships. This finding for the Uniqueness subscale is consistent with the literature demonstrating that adolescents who view their thoughts as unique are more likely to use less mature decision-making strategies than adolescents do not view their thoughts as unique (Johnson & Green, 1993) and the literature that adolescents often abandon formal reasoning strategies when making decisions based on a limited set of criteria (Linn, de Benedictis, & Delucchi, (1982).

In addition to nonsignificant findings related to the Egocentrism hypothesis for the total sample, post hoc analyses examining the relationship between Egocentrism and the three remaining Kahneman and Tversky decision-making revealed no significant relationships. However, when the analysis was conducted separately for both groups, values for one of the correlations was notably different. For the relationship between Egocentrism and similar-loss, the value for the OSU group is .32, significantly different than that for the NAU group ($r = -.44$, $p = .02$).

In addition to nonsignificant findings related to Sensation Seeking hypotheses, post hoc analyses examining the relationship between Sensation Seeking and the three remaining Kahneman and Tversky decision-making revealed no significant relationships. The predictions related to Sensation Seeking were based on an earlier finding that Sensation Seeking was a significant predictor for decision-making in Native American students at OSU (Davis & Green, 1995). Examination of the correlations between Sensation Seeking and similar-loss for the two subsamples reveal a notably different relationship pattern for OSU ($r = .47$) than for NAU ($r = .11$). Examination of the correlation between SS and Frame A reveal a somewhat different pattern for the two groups (OSU: $r = -.50$; NAU: $r = -.34$). Again for Frame B the relationship pattern is significantly different (OSU: $r = -.71$; NAU: $r = .17$; $p < .02$).

The hypotheses that the Stanford Time Perspective Inventory, Future Orientation subscale, would be significantly related to sexual behavior decision-making were partially supported. These hypotheses were based on earlier findings that Future Time Orientation was a significant predictor for decision-making in Native American students at OSU (Davis & Green, 1995). In the present study, students who endorsed the attribute of being future oriented with respect to time were more likely to take a greater risk of losing money to purchase HIV/AIDS medicine. The finding described above is consistent with the general literature that adolescents may have the ability to understand future consequences but may not employ this facet of formal operational thought (Boyer & Hein, 1991). The hypothesis that Future Orientation would correlate negatively with risk-seeking for gain situations in similar probability choices was not supported. Post hoc analyses examining the relationship between the Stanford Time Perspective Inventory and the remaining three Kahneman and Tversky decision-making paradigms revealed no significant relationships between these variables.

The structural variable hypotheses in the present study were consistent with the findings of Davis and Green (1995). What might account for the differences in findings between the present study and the Davis and Green study? Participants in the present study included a small sample from OSU and a sample from NAU that was twice the size of the sample from OSU. Furthermore, the two samples differed from each other in likely influential ways. Descriptive statistic analyses of demographic and cultural data indicated that Native students from NAU were more likely to come from smaller hometowns and were more likely to adhere to the traditional ways of their tribes than were Native students from OSU. They endorsed more items related to cultural traditionalism (e.g., participation in tribal activities, attendance at culture meetings, speak their tribal language, etc.) than OSU students. Given these differences, comparisons between these two studies may not be possible. Additionally, the limited tribal variation in the NAU group compared to the OSU group may also account for the lack of significance in the present study; 75% of the NAU sample reported Navajo ancestry, an additional 12% reported Hopi ancestry. In the OSU subsample, no single tribal affiliation dominated (28% reported Cherokee ancestry, 14% Creek ancestry, 14% Hopi ancestry, & 11% Choctaw ancestry). Given the limited number of studies focused on the relationship between structural variables and Native American decision-making in late adolescence, additional studies are needed to provide insight into these associations.

Contextual Variables

The hypotheses that participants who do not speak their tribal language and participants who are more active in tribal customs would be significantly related to sexual behavior decision-making were not supported. These hypotheses were based on an earlier finding that ability to speak one's Native language and participation in tribal activities were significant predictors for decision-making in Native American students at OSU (Davis & Green, 1995). Post hoc analyses conducted to assess the relationship among the four

empirically derived factors and each of the three remaining Kahneman and Tversky decision-making paradigms revealed no significant relationships. Post hoc analyses conducted to assess the relationship among the four theoretically derived factors and each of three Kahneman and Tversky decision-making paradigms revealed no significant relationships. It is important to note that the prediction related to activity was based on a single question in the Davis and Green (1995) study; however, this question was not retained for the present study because several items in the CIQ measured cultural activity. CIQ item #7 was most similar to the Davis and Green activity item and was used to analyze the hypothesis related to activity. The difference in the items could account for the lack of significance. Additionally, given that the present study found a significant difference between the subsamples in the ability to speak one's Native language and participation in tribal activities, this may account for the nonsignificant results.

The hypothesis that cultural identity would be significantly related to sexual behavior decision-making was not supported. In fact, the only significant correlation, indicated a positive relationship between one's perception of success in the Native way of life with "risky" decision-making. That is, individuals who view themselves as successful in the Native way of life were more likely to risk losing contraceptive effectiveness. The overall predictive concept was based on the assumption that, given a positive relationship between cultural involvement and cultural identification, a positive relationship between cultural identification and "better" decision-making would exist. Given that these hypotheses were exploratory (i.e., has not been previously addressed in the literature), there is no basis in the literature by which to interpret this finding. Future studies that provide insight into the relationships between cultural identity and sexual behavior decision-making are needed.

Regression Analyses

Whereas little significance was found for hypothesized relationships for demographic, structural, and contextual variables or for post hoc analyses, the decision was made to follow through on the proposed regression analysis. The fact that no significance was found supports discussion above regarding sample differences, restriction of range of decision-making variables, power, and alternate measures of decision-making.

Cultural Involvement Questionnaire

Pearson product moment correlations used to assess concurrent validity between the CID and the CIQ revealed a significant overall positive relationship between these two measures indicating that these two instruments share a significant amount of variance. The factor Cultural Tradition was the empirical factor that most likely measured the same construct as that measured by the CID, namely cultural identification. The empirical factor Time with Tribe appears to be measuring a similar construct as the CID item "Do you live or follow the American Indian way of life?" The factor Cultural Involvement was the theoretical factor that most likely measured the same construct as that measured by the CID although two additional theoretical factors, Language and Problem Assistance, were also significantly related to cultural identity. In general, the theoretical factor structure shared more common variance with the CID than did the empirical factor. The unstable nature of the empirical factor analysis may account for the discrepancy between the concurrent validity of the empirical and theoretical factor structures of the CIQ and the CIQ. Continued research focused on gathering additional data for reanalysis is an important area for further development of the CIQ as a statistically sound instrument.

Given the unstable nature of the empirically derived factor analysis, a second factor analysis based, on theoretical assumptions, was completed. A comparison of the two factor structures is warranted. The empirical factor analysis revealed a four-factor solution as the most desirable. The analyses based on theoretical assumptions identified four

factors. The empirical factor, Cultural Tradition, and the theoretically derived factor, Cultural Involvement, had three items (1, 3, and 4) in common. Item #1, participation in tribal celebrations, loaded highest for both the empirical factor, Cultural Tradition, and for the theoretical factor, Cultural Involvement. Item #3, oral tradition, loaded second for both the empirical factor, Cultural Tradition, and for the theoretical factor, Cultural Involvement. Item #4, Native spiritual practices, loaded fourth for the empirical factor, Cultural Tradition, and third for the theoretical factor, Cultural Involvement.

The empirical factor, Cultural Knowledge, and the theoretically derived factor, Cultural Involvement, had three items (29, 30, and 31) in common. Item #29, enrolled member, loaded last for both the empirical factor, Cultural Knowledge, and for the theoretical factor, Cultural Involvement. Item #30, tribal elections, loaded fourth for the empirical factor, Cultural Knowledge, and first, for the theoretical factor, Cultural Involvement. Item #31, tribal policies, loaded fifth for the empirical factor, Cultural Knowledge, and second for the theoretical factor, Cultural Involvement.

The empirical factor, Problem Assistance, and the theoretically derived factor, Problem Assistance, had three items (24, 25, and 26) in common. Item #24, talk to when troubled, loaded first for both the empirical factor, Problem Assistance, and the theoretical factor, Problem Assistance. Item #25, talk to when physically ill, loaded last for both the empirical factor, Problem Assistance, and the theoretical factor, Problem Assistance. Item #26, talk to if non-physically ill, loaded second for both the empirical factor, Problem Assistance, and the theoretical factor, Problem Assistance.

The empirical factor, Native Friends, and the theoretically derived factor, Time with Tribe, appear to be totally different factors. They contained no items in common.

Examination of the two different sets of factor analyses reveals modest similarity between the empirical and theoretical structures. The theoretical factor, Problem Assistance, had the most congruence with the empirical factor of the same name. The

theoretical factor, Cultural Involvement, also had a good amount of overlap with the empirical factors Cultural Tradition and Cultural Knowledge. Given the need of statistically sound instrument for measuring cultural involvement and the discrepancies between the empirically and theoretically derived factor analyses, further study utilizing a greater number of participants is needed in order to identify the final form of the Cultural Involvement Questionnaire. Future research should focus on validity and reliability studies with different age groups as well as a broader range of Native American cultural groups (i.e., tribes).

Given the findings of the present study, continued research is paramount to further elucidate the complex interaction among decision-making per se, an individual's social milieu, (e.g., cultural influences) and the manner in which an individual interprets his or her environment (e.g., cognitive egocentrism). Theoretical as well as empirical studies are needed to develop sound programs targeted for Native youth. A major purpose of this study was to provide insight to, and direction for, health care workers interested in developing HIV/AIDS behavioral intervention and prevention programs for this vulnerable group. The following comments are provided to help direct those interested in implementing such programs.

- 1) Prevention/intervention programs must be relevant to the specific Native American group (e.g., tribe or nation) for which they are designed. Results of this study support the well-accepted assumption that any two tribes may be as different from each other as they are from other so-called less similar cultures (e.g., Anglo). For example, assuming that a program developed for the Creek Nation will be usable with the Navajo Nation may result in a program that is partially or even completely ineffective. Culture clearly plays an important role for mediating decision-making.

2) The development of abstract reasoning throughout adolescence influences sexual risk-taking decision-making. Specifically, those who are likely to view their thoughts as unique are more likely to make decision-making heuristic errors. Educational efforts should help these individuals gain awareness that their thoughts and feelings are more globally experienced rather than unique to the individual. This is important because the perception of self as special and unique is likely to lead to a sense of invulnerability (i.e., "it can't/won't happen to me"). With respect to HIV/AIDS intervention/prevention program development, it becomes obvious that such programs should assess individuals uniqueness and provide education as necessary.

3) An individual's orientation to the passage of time influences sexual risk-taking decisions; in the present study future time orientation was related to taking risks. Perhaps it is more valid to look at longer term risk-taking for treatment for HIV/AIDS than short-term risk taking. For example, an individual who tends to plan for the future becomes more willing to take a risk when the end result might prolong his or her life. Thus, teaching adolescents to plan may increase effective health-related decision-making for individuals who have been diagnosed with the disease. However, teaching adolescents to anticipate the consequences of their behavior may also result in better behavioral health-related decision-making.

4) Although similar, cultural identity and cultural involvement are not equivalent constructs; therefore, measures of these constructs cannot be assumed equal. Identity is the subjective understanding of one's essential character, whereas involvement provides an objective and quantifiable measure of activity. Both how an individual views his- or her-self and how involved the individual is in his or her culture are important to consider when developing HIV/AIDS prevention/intervention programs.

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APPENDIX A
CONTENT-ADAPTED PARADIGMS

Risk-gain Paradigm -- 100% versus 50%

1A. In addition to whatever contraceptive you are presently using, you have been given the opportunity to use a method that is 50% effective. You are now asked to choose between:

- A. a 50% chance to gain an additional 50% effectiveness.
- B. a 100% chance to gain an additional 25% effectiveness.

Risk-loss Paradigm --100% versus 50%

1B. In addition to whatever contraceptive you are presently using, you have been given the opportunity to use a method that is 100% effective. You are now asked to choose between:

- A. a 50% chance to lose 50% effectiveness.
- B. a 100% chance to lose 25% effectiveness.

Framing I Paradigm

2A & B. Imagine that you have decided to have sexual intercourse with your partner. You have set aside \$10 to buy a package of condoms. As you enter the drugstore, you discover that you have lost a \$10 bill.

Would you still pay \$10 for a package of condoms?

Yes

No

Framing II Paradigm

3A & B. Imagine that you have decided to have sexual intercourse with your partner. You have purchased a package of condom for \$10. As you pass the drug store on the way to meet your partner, you realize that you have lost the package of condoms.

Would you still pay \$10 for a package of condoms?

Yes

No

Conjunction Fallacy Paradigm

4A & B. Peter is a junior in college who has sex occasionally. One Friday night, earlier in the semester, Peter had sex without a condom. Please rank the following outcomes from most (1) to least (5) probable.

- _____ 1. On Friday night, after having sex, Peter will get AIDS--HIV.
- _____ 2. On the following Saturday night, after having sex, Peter will get AIDS--HIV.
- _____ 3. On Friday night, after having sex, Peter will get herpes.
- _____ 4. On Friday night, after having sex, Peter will get herpes. On the following Saturday night, after having sex, he will get AIDS--HIV.
- _____ 5. On Saturday night, after having sex, Peter will get herpes.

Risk-gain Paradigm -- 100% versus 0.1%

5A. You have been diagnosed with AIDS--HIV. In addition to whatever you own, you have been given \$50,000 to spend on medicine. You are now asked to choose between a .1% chance to gain \$50,000 or a 100% chance to gain \$50.

- A. a .1% chance to gain \$50,000.
- B. a 100% chance to gain \$50.

Risk-loss Paradigm -- 100% versus 0.1%

5B. You have been diagnosed with AIDS--HIV. In addition to whatever you own, you have been given \$100,000 to spend on medicine. You are now asked to choose between a .1% to lose \$50,000 or a 100% chance to lose \$50.

- A. a .1% chance to lose \$50,000.
- B. a 100% chance to lose \$50.

Disjunction Paradigm -- Paying to Know

6A. Imagine that you have just been advised that you have a sexually transmitted disease (STD). The physician at the Health Center tells you that the Center is participating in an experimental trial of a drug that cures STDs. You are not sure whether the drug has side effects or not. You have the opportunity to be included in the study - receive the drug. You would have to pay for the medication. The offer to be a participant expires tomorrow, while information on side effects of the drug will not be available until the following day.

Would you:

- A. participate in the study.
- B. not participate in the study.
- C. pay a \$5 nonrefundable fee in order to retain the rights to participate in the study the day after tomorrow - after you find out whether or not there are side effects to the drug.

Non-disjunction Paradigms -- Paying to Know

6BI. Imagine that you have just been advised that you have a sexually transmitted disease (STD). The physician at the Health Center tells you that the Center is participating in an experimental trial of a drug that cures STDs. You were told that there are side effects to the drug. You have the opportunity to be included in the study - receive the drug. You would have to pay for the medication. The offer to be a participant expires tomorrow. Would you:

- A. participate in the study.
- B. not participate in the study.
- C. pay a \$5 nonrefundable fee in order to retain the rights to participate in the study the day after tomorrow - after you find out whether or not there are side effects to the drug.

Non-disjunction Paradigms -- Paying to Know

6BII. Imagine that you have just been advised that you have a sexually transmitted disease (STD). The physician at the Health Center tells you that the Center is participating in an experimental trial of a drug that cures STDs. You were told that there are no side effects to the drug. You have the opportunity to be included in the study - receive the drug. You would have to pay for the medication. The offer to be a participant expires tomorrow.

Would you:

- A. participate in the study.
- B. not participate in the study.
- C. pay a \$5 nonrefundable fee in order to retain the rights to participate in the study the day after tomorrow - after you find out whether or not there are side effects to the drug.

Representativeness Paradigm

7A & B. A certain town is served by two pharmacies. In the larger pharmacy about 45 prescriptions for birth control pills are filled each day, and in the smaller pharmacy about 15 prescriptions are filled each day. About 50% of all prescriptions filled are for brand A and the other 50% are for brand B. The exact percentage for brand A, however, varies from day to day. Sometimes it may be higher than 50%, sometimes lower.

For a period of 1 year, each pharmacy recorded the days on which more than 60% of the birth control prescriptions filled were for brand A. Which pharmacy do think recorded more such days?

- A. The larger pharmacy.
- B. The smaller pharmacy.
- C. About the same.

APPENDIX B
CULTURAL INVOLVEMENT QUESTIONNAIRE

NATIVE AMERICAN CULTURAL INVOLVEMENT QUESTIONNAIRE

Considering an average over the last five years, circle the number range closest to the number of times per year you are involved in this type of activity.

1. How often do you participate in your or another tribe's celebrations (e.g., powwows, ceremonial dances, historic/seasonal celebrations, sweat lodge, etc.)?

0 1-6 7-12 13-18 19-24 25-29 30+

2. How often do you participate in culture meetings (e.g., language classes, culture clubs, drum groups, etc.)?

0 1-6 7-12 13-18 19-24 25-29 30+

3. How often do you participate in the oral tradition of your tribe or another tribe (e.g., tell native stories, as a singer, etc.)?

0 1-6 7-12 13-18 19-24 25-29 30+

4. How often do you participate in the Native American Church, an Indian church, traditional Indian spiritual practices or another Indian faith?

0 1-6 7-12 13-18 19-24 25-29 30+

Circle the answer that best describes you.

5. Do you or can you speak your tribal language?

Yes Some No

6. Do you cook or have you cooked Indian foods?

Yes Sometimes No

7. Do you wear or have you worn traditional dress (e.g., buckskin, bustle, shawl, etc.) to cultural celebrations or other events?

Usually Sometimes Never

8. Do you make or have you made traditional tribal items (e.g., beadwork, tribal dress, fans pipes, pottery, weaving, etc.)?

Yes No

9. Do you own or have you owned traditional items (e.g., tribal dress and jewelry, fans, pipes, etc.)?

Yes No

10. Do you actively seek out or have you actively sought out information on tribal history (e.g., from elders, books, magazines, etc.)?

Yes No

11. Do you respect and/or uphold your tribe's philosophy (e.g., views on community, nature, family obligations, etc.)?

Yes No

12. Do you work or have you worked for an Indian tribe or agency (e.g., volunteer or pay; Indian Health Service, Bureau of Indian Affairs)?

Yes No

Circle N/A for the questions 13 - 17 if the individual is not Indian.

13. Does (did) your mother speak/understand her tribal language?

Yes No N/A Unknown

14. Does (did) your father speak/understand his tribal language?

Yes No N/A Unknown

15. Does (did) at least one of your grandmothers speak/understand her tribal language?

Yes No N/A Unknown

16. Does (did) at least one of your grandfathers speak/understand his tribal language?

Yes No N/A Unknown

17. Does (did) at least one of your brothers/sisters speak/understand their tribal language?

Yes No N/A Unknown

Circle the answer that best describes you (circle only one option).

18. About what percentage of the time is any of an Indian language spoken in your home or family?

0 25% 50% 75% 100%
(never) (sometimes) (half the time) (most of the time) (always)

19. What percentage of your friends are Indian?

0 25% 50% 75% 100%
(never) (some) (half) (most) (all)

20. What percentage of your friends are members of your tribe(s)?

0 25% 50% 75% 100%
(never) (some) (half) (most) (all)

21. What percentage of your friends are actively involved in tribal activities and celebrations (e.g., tribal or intertribal social, religious, or political activities)?

0 25% 50% 75% 100%
(never) (some) (half) (most) (all)

22. What percentage of your time is spent with other active tribal members (either from your tribe or another tribe)?

0 25% 50% 75% 100%
(never) (sometimes) (half the time) (most of the time) (always)

23. What percentage of your time are you involved in tribal activities and celebrations (e.g., tribal or intertribal social, religious, or political activities)?

0 25% 50% 75% 100%
(never) (sometimes) (half the time) (most of the time) (always)

Place a check mark in front of your answer to the following questions (check only one option).

24. Who would you be most likely to talk to if you had a problem (e.g., personal, academic, got in trouble, etc.)?

parent extended family tribal leaders/healers friends other

25. With whom would you be most likely to talk if you had a physical illness (e.g., broken leg, cold or flu, serious medical problem, etc.)?

parent extended family tribal leaders/healers friends other

26. With whom would you be most likely to talk if you had a non-physical illness (e.g., feeling sad, nervous, etc.)?

parent extended family tribal leaders/healers friends other

Circle either yes or no for the following questions.

27. Have you ever talked with a Tribal Elder about a problem or illness?

Yes No

28. Have you ever talked with a Native American Healer or Traditional Healer about a problem or illness?

Yes No

29. Are you an enrolled member of your tribe?

Yes No

30. Do you vote in tribal elections?

Yes No

31. Are you interested in tribal policies and business?

Yes No

Circle one of the following.

32. If there were a program planned for your community to promote "Indian Awareness," would you:

- A) volunteer your services?
- B) wait to be asked?
- C) prefer not to participate?
- D) defer to elders, assist an elder?

APPENDIX C
STANFORD TIME PERSPECTIVE INVENTORY

Stanford Time Perspective Inventory

Read each item and, as honestly as you can, answer the question: "How characteristic or true is this of you?" Check the appropriate box using the following scale:

	Very Untrue	1	2	3	4	5	Very True		Very Untrue	1	2	3	4	5	Very True
1. I believe that getting together with friends to party is one of life's important pleasures.								20. I feel that it's more important to enjoy what you are doing than to get the work done on time.							
2. I believe that a person's day should be planned ahead each morning.								21. I don't do things that will be good for me if they don't feel good now.							
3. It gives me pleasure to think about my past.								22. I tend to lose my temper when I'm provoked.							
4. If things don't get done on time, I don't worry about it.								23. I try to be realistic about what the future holds for me.							
5. Thinking about the future is pleasant to me.								24. I enjoy working with others in a supportive group.							
6. When I want to achieve something, I set goals and consider specific means for reaching those goals.								25. Since the past is over and gone, I prefer to ignore it and focus on what I can control in my life.							
7. Meeting tomorrow's deadlines and doing other necessary work comes before tonight's play.								26. I get irritated at people who keep me waiting when we've agreed to meet at a given time.							
8. I enjoy stories about how things used to be in the "good old times."								27. My life is controlled by my destiny rather than by my actions.							
9. It seems to me that my future plans are pretty well laid out.								28. I believe it is important to save for a rainy day.							
10. I try to live one day at a time.								29. I get drunk at parties.							
11. I think that it's useless to plan too far ahead because things hardly ever come out the way you planned anyway.								30. It seems to me that it doesn't make sense to worry about the future, since fate determines that whatever will be, will be.							
12. It's fun to gamble when I have some extra money.								31. I prefer the old and familiar to the new and changing.							
13. It upsets me to be late for appointments.								32. I complete projects on time by making steady progress.							
14. I often think about how it might have been to live in an earlier time.								33. I find myself tuning out when family members talk about the way things used to be.							
15. I meet my obligations to friends and authorities on time.								34. I take risks to put excitement in my life.							
16. It makes sense to buy insurance.								35. I make lists of things to do.							
17. The past has too many unpleasant memories that I prefer not to think about.								36. I live to make better what is rather than to be concerned about what will be.							
18. I put off small gratifications that are certain for bigger gratifications that are possible.								37. I keep working at a difficult, uninteresting task if it will help me get ahead.							
19. I do things impulsively, making decisions on the spur of the moment.								38. I am able to resist temptations when I know there is work to be done.							

APPENDIX D
PERSONAL FABLE

INSTRUCTIONS

PF (1 of 4)

The following questions are designed to learn more about people your age. There are no right or wrong answers to these questions, so please answer them according to how you feel. Please answer every question. If you are not sure about a specific question, please give the best answer you can.

Read each statement and then put an "X" through the letter at the right that best describes how you feel.

Example:

A. I like to get up early

If you strongly disagree with this statement,
put an "X" through A, like this

If you disagree, put an "X" through B,
like this

If you agree, put an "X" through D,
like this

Strongly Disagree Disagree Undecided Agree

	Strongly Disagree		Disagree		Undecided		Agree
A	B	C	D	A	B	C	D
X	B	C	D	A	X	C	D
A	B	C	D	A	B	C	X

PF (2 of 4)

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1. The way I look at things is the only way to look at things.	A	B	C	D	E
2. There are a lot of rules that don't apply to me.	A	B	C	D	E
3. I can make things come true just by wishing.	A	B	C	D	E
4. No one understands me.	A	B	C	D	E
5. The world revolves around me.	A	B	C	D	E
6. After I've done something that might get me into trouble, I can protect myself from harm by using will power.	A	B	C	D	E
7. When I get away with breaking a rule, I am likely to break it again.	A	B	C	D	E
8. I think: if it feels good, do it.	A	B	C	D	E
9. Other people know what is best for me.	A	B	C	D	E
10. When I'm faced with danger, I do the first things that comes to my mind.	A	B	C	D	E
11. I think about things differently than anyone else in the world.	A	B	C	D	E
12. Even if I wish very hard, I cannot make something happen.	A	B	C	D	E
13. If I did something wrong, I would get caught.	A	B	C	D	E
14. I feel like nothing can hurt me.	A	B	C	D	E
15. No one else knows what my feelings are like.	A	B	C	D	E

PF (3 of 4)

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
16. I think: if a little of something is good, a lot is better.....	A	B	C	D	E
17. Before I make a choice, I think carefully.....	A	B	C	D	E
18. I obey rules.....	A	B	C	D	E
19. I like taking chances.....	A	B	C	D	E
20. I know what is best for me.....	A	B	C	D	E
21. When other people don't agree with me, they are wrong.....	A	B	C	D	E
22. Bad things can happen to me.....	A	B	C	D	E
23. I'm the only one in the world who feels the way I do.....	A	B	C	D	E
24. When I am faced with danger, I think about several possible things to do.....	A	B	C	D	E
25. I don't do something just because it feels good.....	A	B	C	D	E
26. If I take risks, I won't get in trouble.....	A	B	C	D	E
27. I'm smart enough to keep myself out of trouble.....	A	B	C	D	E
28. My thoughts are so different that other people think they are weird....	A	B	C	D	E
29. I do <u>not</u> obey the rules.....	A	B	C	D	E
30. I know more about what is best for me than other people do.....	A	B	C	D	E

PF (4 of 4)

Strongly Disagree Disagree Undecided Agree Strongly Agree

- | | | | | | |
|-----------------------------------------------------------------------------------|---|---|---|---|---|
| 31. I think praying can keep bad things from happening. | A | B | C | D | E |
| 32. I'm the center of the universe | A | B | C | D | E |
| 33. If I did something wrong, I wouldn't get caught | A | B | C | D | E |
| 34. When I get bored, I seek out trouble. | A | B | C | D | E |
| 35. I believe that nothing really bad will ever happen to me | A | B | C | D | E |
| 36. I can make something happen if I wish very hard about it. | A | B | C | D | E |
| 37. The world does <u>not</u> revolve around me | A | B | C | D | E |
| 38. Once I have broken a rule, it's easier to break it again | A | B | C | D | E |
| 39. No one else has ever looked at the world in the same way
that I do | A | B | C | D | E |
| 40. Even though I believe something is wrong, I'm likely to do
it anyway | A | B | C | D | E |
| 41. God protects me when I am in danger | A | B | C | D | E |
| 42. I do things without thinking | A | B | C | D | E |
| 43. Other people know more about what is best for me than I do | A | B | C | D | E |

Table 1
Significant Sample Differences Between Northern Arizona University and Oklahoma State University Students

Variable	Mean	<u>NAU</u> SD	Mean	<u>OSU</u> SD	p <
Blood quantum	76.60	42.61	21.64	41.67	.0001
Native parents	1.86	.35	1.5	.51	.005
Native grandparents	3.69	.74	2.44	1.25	.0001
Tribal activities	10.57	5.05	7.43	5.71	.005
Culture meetings	3.88	2.05	2.32	2.0	.05
Language	2.34	.62	2.14	.69	.0001
Parent's tribe	1.32	.40	1.19	.48	.05
Hometown size	3.04	1.46	4.18	2.21	.05
High School GPA	3.04	.55	3.36	.35	.005

Table 2
Empirical Factor Analysis of the Cultural Involvement Questionnaire

<i>Factor Label Item</i>	<i>Cultural Tradition</i>	<i>Cultural Knowledge</i>	<i>Problem Assistance</i>	<i>Time with Tribe</i>
<i>Cultural Tradition</i>				
01	<u>.76</u>	-.01	-.11	.31
02	<u>.69</u>	-.19	-.18	-.05
03	<u>.77</u>	-.02	.02	.32
04	<u>.64</u>	.02	.12	.05
07	<u>.68</u>	.31	.21	-.15
08	<u>.46</u>	.08	.17	-.21
09	<u>.49</u>	.19	.12	-.06
10	<u>.35</u>	.15	-.07	-.01
11	<u>.47</u>	.24	-.01	.04
27	<u>.59</u>	.36	-.08	.10
28	<u>.59</u>	.23	-.10	.11
<i>Cultural Knowledge</i>				
05	.37	<u>.69</u>	.06	-.12
13	.34	<u>.62</u>	.03	.13
14	.23	<u>.51</u>	.04	-.09
19	-.05	<u>.44</u>	.02	.08
29	.03	<u>.55</u>	-.00	-.02
30	.13	<u>.37</u>	-.08	-.05
31	.11	<u>.38</u>	.13	-.08
32	.09	<u>.53</u>	.06	-.06
<i>Problem Assistance</i>				
24	.09	.03	<u>.88</u>	-.09
25	-.06	.02	<u>.37</u>	-.17
26	.08	.04	<u>.65</u>	.04
<i>Time withTribe</i>				
22	-.04	-.01	-.17	<u>.58</u>
23	-.17	-.09	-.04	<u>.58</u>

Table 3
Cultural Involvement Questionnaire Empirical Factor Analysis Items

<i>Factor Item Number</i>	<i>Item</i>
<i>Cultural Tradition</i>	
01	How often do you participate in your or another tribe's celebrations (e.g., powwows, ceremonial dances, historic/seasonal celebrations, sweat lodge, etc.)?
02	How often do you participate in culture meetings (e.g., language classes, culture clubs, drum groups, etc.)?
03	How often do you participate in the oral tradition of your tribe or another tribe (e.g., tell native stories, as a singer, etc.)?
04	How often do you participate in the Native American Church, an Indian church, traditional Indian spiritual practices or another Indian faith?
07	Do you wear or have you worn traditional dress (e.g., buckskin, bustle, shawl, etc.) to cultural celebrations or other events?
08	Do you make or have you made traditional tribal items (e.g., beadwork, tribal dress, fans pipes, pottery, weaving, etc.)?
09	Do you own or have you owned traditional items (e.g., tribal dress and jewelry, fans, pipes, etc.)?
10	Do you actively seek out or have you actively sought out information on tribal history (e.g., from elders, books, magazines, etc.)?
11	Do you respect and/or uphold your tribe's philosophy (e.g., views on community, nature, family obligations, etc.)?
27	Have you ever talked with a Tribal Elder about a problem or illness?
28	Have you ever talked with a Native American Healer or Traditional Healer about a problem or illness?

Table 3 Continued

<i>Factor Item Number</i>	<i>Item</i>
<i>Cultural Knowledge</i>	
05	Do you or can you speak your tribal language?
13	Does (did) your mother speak/understand her tribal language?
14	Does (did) your father speak/understand his tribal language?
19	What percentage of your friends are Indian?
29	Are you an enrolled member of your tribe?
30	Do you vote in tribal elections?
31	Are you interested in tribal policies and business?
32	If there were a program planned for your community to promote "Indian Awareness," would you: <ul style="list-style-type: none"> A) volunteer your services? B) wait to be asked? C) prefer not to participate? D) defer to elders, assist an elder?
<i>Problem Assistance</i>	
24	Who would you be most likely to talk to if you had a problem (e.g., personal, academic, got in trouble, etc.)?
25	With whom would you be most likely to talk if you had a physical illness (e.g., broken leg, cold or flu, serious medical problem, etc.)?
26	With whom would you be most likely to talk if you had a non-physical illness (e.g., feeling sad, nervous, etc.)?
<i>Native Friends</i>	
22	What percentage of your time is spent with other active tribal members (either from your tribe or another tribe)?
23	What percentage of your time are you involved in tribal activities and celebrations (e.g., tribal or intertribal social, religious, or political activities)?

Table 4
Cultural Identification Questionnaire Theoretical Factor Analysis Items

<i>Factor Item Number</i>	<i>Item</i>
<i>Cultural Involvement</i>	
01	How often do you participate in your or another tribe's celebrations (e.g., powwows, ceremonial dances, historic/seasonal celebrations, sweat lodge, etc.)?
03	How often do you participate in the oral tradition of your tribe or another tribe (e.g., tell native stories, as a singer, etc.)?
04	How often do you participate in the Native American Church, an Indian church, traditional Indian spiritual practices or another Indian faith?
29	Are you an enrolled member of your tribe?
30	Do you vote in tribal elections?
31	Are you interested in tribal policies and business?

Table 4 Continued
Cultural Identification Questionnaire Theoretical Factor Analysis Items

<i>Factor Item Number</i>	<i>Item</i>
<i>Language</i>	
05	Do you or can you speak your tribal language?
17	Does (did) at least one of your brothers/sisters speak/understand their tribal language?
18	About what percentage of the time is any of an Indian language spoken in your home or family?
<i>Problem Assistance</i>	
24	Who would you be most likely to talk to if you had a problem (e.g., personal, academic, got in trouble, etc.)?
25	With whom would you be most likely to talk if you had a physical illness (e.g., broken leg, cold or flu, serious medical problem, etc.)?
26	With whom would you be most likely to talk if you had a non-physical illness (e.g., feeling sad, nervous, etc.)?
27	Have you ever talked with a Tribal Elder about a problem or illness?
28	Have you ever talked with a Native American Healer or Traditional Healer about a problem or illness?
<i>Native Friends</i>	
19	What percentage of your friends are Indian?
20	What percentage of your friends are members of your tribe(s)?

Table 5
Theoretical Factor Analysis of the Cultural Involvement Questionnaire
Cultural Involvement Factor

<i>Factor Label</i> Item	<i>Cultural</i> <i>Events</i>	<i>Politics</i>
<i>Cultural Involvement</i>		
<i>Cultural Events</i>	<u>.90</u>	-.06
01	<u>.76</u>	-.02
03	<u>.61</u>	.02
04		
<i>Politics</i>		
29	.04	<u>.59</u>
30	.11	<u>.51</u>
31	.08	<u>.70</u>

Table 6
Theoretical Factor Analysis of the Cultural Involvement Questionnaire
Language Factor

<i>Factor Label</i> Item	<i>Language</i>
<hr/>	
<i>Language</i>	
05	<u>.95</u>
17	<u>.51</u>
18	<u>.42</u>

Table 7
Theoretical Factor Analysis of the Cultural Involvement Questionnaire
Problem Assistance Factor

<i>Factor Label</i> Item	Problem/ Illness Assistance	Elder/Healer Assistance
<i>Problem Assistance</i>		
<i>Problem/Illness Assistance</i>		
24	<u>.97</u>	-.03
25	<u>.38</u>	.01
26	<u>.63</u>	.02
<i>Elder/Healer Assistance</i>		
27	.03	<u>.74</u>
28	-.01	<u>.72</u>

Table 8
Theoretical Factor Analysis of the Cultural Involvement Questionnaire
Native Friends Factor

<i>Factor Label</i> Item	<i>Native</i> <i>Friends</i>
<i>Native Friends</i>	
19	<u>.67</u>
20	<u>.67</u>

Table 9
**Concurrent Validity Between the Cultural Involvement Questionnaire and
the Cultural Identity Scale**

<i>Cultural Identity Item Factor Label</i>	Self Live By or Follow	Personal Success	Family Live By or Follow	Family Success
<u>Empirical Factors</u>				
<i>Cultural Tradition</i>	.58*	.48*	.52*	.43*
<i>Cultural Knowledge</i>	-.02	.05	.03	.04
<i>Problem Assistance</i>	-.11	-.02	-.09	-.14
<i>Time withTribe</i>	.23*	.12	.20	.14
<u>Theoretical Factors</u>				
<i>Cultural Involvement</i>	.48*	.42*	.42*	.35*
<i>Language</i>	.32*	.22*	.23*	.17
<i>Problem Assistance</i>	.26*	-.13	.23*	.24*
<i>Native Friends</i>	.11	.08	.15	.09

* p < .5

APPENDIX E
INSTITUTIONAL REVIEW BOARD APPROVAL

OKLAHOMA STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
HUMAN SUBJECTS REVIEW

Date: 08-02-95

IRB#: AS-96-007

Proposal Title: STRUCTURAL AND CONTEXTUAL INFLUENCES ON
HIV/AIDS-RELATED DECISION-MAKING OF NATIVE AMERICAN
ADOLESCENTS

Principal Investigator(s): Vicki Green, Jamie D. Davis

Reviewed and Processed as: Expedited

Approval Status Recommended by Reviewer(s): Approved

ALL APPROVALS MAY BE SUBJECT TO REVIEW BY FULL INSTITUTIONAL REVIEW BOARD
AT NEXT MEETING.

APPROVAL STATUS PERIOD VALID FOR ONE CALENDAR YEAR AFTER WHICH A
CONTINUATION OR RENEWAL REQUEST IS REQUIRED TO BE SUBMITTED FOR BOARD
APPROVAL.

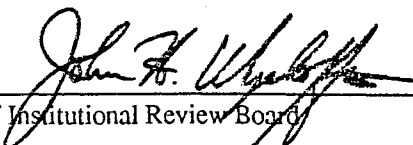
ANY MODIFICATIONS TO APPROVED PROJECT MUST ALSO BE SUBMITTED FOR
APPROVAL.

Comments, Modifications/Conditions for Approval or Reasons for Deferral or Disapproval
are as follows:

COMMENTS:

The application is approved, but the reviewers had a couple of comments. First, it's suggested that the name "Jennifer Moore" be added to the consent form as the specific contact person at University Research Services. Second, the reviewers feel that questions #4 and #5 on the Demographics Questionnaire are redundant. For purposes of confidentiality, it's suggested that only question #5 be used, as this does not ask the specific date of birth.

Signature:


Chair of Institutional Review Board

Date: August 22, 1995

VITA

Jamie Dee Davis Hueston

Candidate for the Degree of

Doctor of Philosophy

Thesis: STRUCTURAL AND CONTEXTUAL INFLUENCES ON HIV/AIDS-RELATED DECISION-MAKING OF NATIVE AMERICAN ADOLESCENTS

Major Field: Child Clinical Psychology

Biographical:

Personal Data: Born in Oklahoma City, Oklahoma, on August 19, 1960, the daughter of John Weeks and Mary Lou Davis.

Education: Graduated from Heritage Hall High School, Oklahoma City, Oklahoma, May 1978; received Bachelor of Arts degree in Psychology from the University of Nebraska at Omaha, May, 1990; completed the requirements for the Master of Science with a major in Psychology at Oklahoma State University, July, 1993; completed the requirements for the Doctor of Philosophy with a major in Child Clinical Psychology at Oklahoma State University, July, 1997.

Experience: Currently completing a post-doctoral fellowship at Dartmouth-Hitchcock Medical Center; clinical pre-doctoral fellowship completed at Dartmouth-Hitchcock Medical Center from 1996 to 1997. Clinical practicum experience includes Griffin Memorial Hospital and the Oklahoma Youth Center from 1994 to 1995, the Psychological Services Center at Oklahoma State University from 1993 to 1996, and Indian Health Service in 1995. Employed by Oklahoma State University, Department of Psychology as an undergraduate and graduate research assistant, 1992 to 1996. Volunteer experience includes Project Heartland (Oklahoma City disaster counseling), counseling at a transitional care facility for those with chronic mental illness, sexual abuse counseling for victims and perpetrators, and substance abuse treatment.

Professional Memberships: American Indian Society of Psychologists, American Psychological Association, Society for the Psychological Study of Ethnic Minority Issues, Southwestern Psychological Association, Oklahoma Psychological Association, Psi Chi, Native American Faculty and Staff Association, Native American Student Association, Vermont Association for Psychoanalytic Studies.