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**ACTING ON BEHALF OF OTHERS: THE DEVELOPMENTAL
UNDERPINNINGS OF SOCIAL RESPONSIBILITY IN ADOLESCENCE**

A Dissertation in
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by

Amy K. Syvertsen

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The dissertation of Amy K. Syvertsen was reviewed and approved* by the following:

Constance A. Flanagan
Professor of Youth Civic Development
Dissertation Co-Advisor
Co-Chair of Committee

Mark T. Greenberg
Professor of Human Development and Psychology
Edna Peterson Bennett Endowed Chair in Prevention Research
Director, The Prevention Research Center for the Promotion of Human Development
Dissertation Co-Advisor
Co-Chair of Committee

J. Douglas Coatsworth
Associate Professor of Human Development

Linda M. Collins
Professor of Human Development and Statistics
Director, The Methodology Center

Celene E. Domitrovich
Assistant Director, The Prevention Research Center for the Promotion of Human Development

Michelle A. Miller-Day
Associate Professor of Communication Arts and Sciences

Douglas M. Teti
Professor of Human Development and Psychology
Professor in Charge of Graduate Studies, Department of Human Development and Family Studies

*Signatures are on file in the Graduate School

ABSTRACT

The cascade of changes that occur in young people's social and cognitive development during adolescence allows them to engage in more sophisticated and other-oriented thinking than when they were children. The purpose of this dissertation is to explore how adolescents respond to hypothetical situations where the safety or well-being of others is compromised. In particular, these studies explore adolescents' feelings of responsibility for others in the context of tobacco and drug use by peers. A multi-method person-oriented research design was used to assess intraindividual change and interindividual differences. Study 1 presented 790 adolescents with vignettes about a friend who begins smoking cigarettes or using drugs and asked how likely they would be to respond using different strategies. Latent transition analysis revealed four adolescent profiles based on the likelihood of seeking adult help, talking to the friend, ending the relationship with the user, and ignoring the situation. There were significant changes from early to late adolescence with fewer youth estimated to fit into profiles that involved ending the relationship or intervening with age. Adolescents who were female, valued social responsibility, understood the risks of and refrained from substance use, and felt that substance use was not simply the individual user's business were more likely to endorse intervening on behalf of a friend. Using a qualitative approach, Study 2 examined how adolescents reason about marijuana use and whether their reasoning changes when the risks extend beyond the self. A textual analysis of written responses to four open-ended questions provided by 1,127 adolescents revealed that while most young people disagree with a peer using marijuana and offering it to others, they use a broad range of reasoning to justify their opinions and these justifications vary systematically with age and whether other people could be harmed. Collectively, results contribute to our understanding of adolescents' responsiveness to situations where a peer may require help, as well as provide insight into the developmental underpinnings of social responsibility in adolescence.

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“No society can long sustain itself unless its members have learned the sensitivities, motivations, and skills involved in assisting and caring for other human beings.”

— *Urie Bronfenbrenner* (1979; p. 53)

Introduction

Social Responsibility in the Context of Adolescent Substance Use

As a society, we hope our children are raised to do the right thing: to help others when they need it, to respect peers and elders, and to be assets rather than liabilities to their communities. Inculcating such values and behaviors requires a concerted commitment on the part of parents, teachers, and the community at-large. Lessons about what is “right” occur regularly in families and in schools. But simply knowing right from wrong is not enough if young people are unmotivated to act accordingly. The overarching purpose of this dissertation is to explore how adolescents respond to hypothetical situations where the safety or well-being of others is compromised. In this work, I am particularly interested in exploring adolescents’ feelings of responsibility for others in the context of tobacco and drug use by peers. Grounded in a developmental perspective, these studies examine the social, behavioral, health, and relational factors that motivate young people to take action on behalf of a peer who chooses to engage in risky behavior. In addition to drawing from diverse methodological approaches, the nature and relational contexts of these two studies vary. Together these studies enrich our understanding of the ways adolescents respond to the risk behaviors of others and why some choose to intervene while others do not.

Defining Social Responsibility

Social responsibility, a reflection of an individual’s personal investment in the greater good, manifests itself in our beliefs and the way we live with others (Berman, 1990; Galloway, 2006; Kohlberg & Candee, 1984). It is a worldview that germinates in the intimate relationships and contexts that structure young people’s daily lives (see Berman, 1997). For some, this sense of obligation to others and concern for the common good never extends beyond the people and places that they know, while others develop a broader sense of responsibility that includes more

abstract, unknown others (e.g., community, country, world). These studies examine social responsibility as it applies to young people's relationships with known others by investigating whether adolescents, when confronted with a potentially risky situation involving a peer, express a willingness to intervene – a response I consider to be a manifestation of underlying socially responsible values.

Three characteristics define social responsibility (Berman, 1997). Obligation to the common good, first and foremost, is rooted in feelings of connectedness and interdependence. Social responsibility involves seeing one's self as part of something larger than an individual being, like as part of a relationship or a social network, where streams of mutual respect and obligation shape interactions. Social psychological studies empirically demonstrate that when people identify with a group, they are more inclined to forego self interests to benefit others (Brewer & Gardner, 1996) and to come to the aid of group members (Darley & Latané, 1968). Indeed, as previous work on school climate shows, adolescents who report feelings of cohesion or connectedness to classmates and teachers are more inclined than those who do not to take action on their behalf (Syvertsen, Flanagan, & Stout, 2009). Second, the formation of these relationships with others and with society should be guided by ethical considerations. Relationships rooted in expectations of social responsibility are, at their core, based on care and fairness. Third, social responsibility guides ethical behavior. Individuals who feel obligated to the common good generally strive to act in a manner consistent with their concern for the welfare of others, which includes consideration of the consequences their actions have both on the self and on those in the abstract (Kohlberg & Candee, 1984). Collectively, these characteristics paint an image of social responsibility as an orientation, rooted in relationships, that involves thinking and acting in ways that prioritize or, at the very least, balance the good of the whole with one's personal interests.

Social Responsibility in the Context of Adolescent Substance Use

Outside of the parent-child bonds, peers represent the first “others” with whom many young people form relationships. In these studies, I focus on two specific peer relationships in which adolescents learn how to balance personal interests with those of others: friendships and sibling dyads. These relational contexts provide a training ground for young people to work out what it means to care for another person as well as to negotiate the responsibilities involved in maintaining healthy relationships. Specifically, these studies focus on adolescents’ responses to a peer’s tobacco and/or drug use.

Though rarely cast from this perspective in the developmental or prevention science literatures, adolescent substance use provides a natural and normative context in which to explore social responsibility. Tobacco and drug use are inherently social behaviors that pose risks both to users and others. In other words, while the choice to use alcohol, tobacco, or other drugs is made by individuals, the consequences reverberate outward. For example, the public consequences of substance use range from exposure to secondhand smoke, to drunk driving, to – at a more intimate level – a potentially corroding effect on one’s relationships with others. It is these types of public consequences that push substance use from being a squarely private matter out into the public domain. Additionally, although social responsibility usually evokes images of obligations to others in the abstract, in reality, it is an ethic and a behavior that plays out in the more proximal relationships (e.g., with siblings, friends, teammates, classmates, and teachers) and concerns (e.g., to stop a friend from smoking, to recycle a plastic bottle) that structure adolescents’ daily lives. Acting in the best interest of others – whether it be a friend or the planet – is social responsibility in its purest form. In the context of a peer’s substance use, social responsibility involves taking action to prevent a peer from harming themselves or others.

Why Some Act and Others Do Not

In the split-second it takes to decide how to respond to situations where a peer is using tobacco or marijuana, the moral, social, and interpersonal factors that form adolescents’ identities

surface. Drawing from the extant literature on bystander intervention (e.g., Gini, Albiero, Benelli, & Altoè, 2008; Latané & Darley, 1970) and the known correlates of social responsibility (Berman, 1997), these studies use a variety of techniques to better understand how adolescents respond to the risk behaviors of others and why some choose to intervene while others do not. The thesis underlying these studies is that adolescents should be inclined, on the basis of their relationship, to act on behalf of their peer. Adolescents' perceptions of the behavior as dangerous to the peer or others and as a matter of public concern should intensify that desire. Gender differences are examined, as existing research suggests females tend to be more forthcoming in their offers to assist others, display higher levels of empathy, and take a greater level of responsibility for peers (e.g., Eisenberg & Morris, 2004; Flanagan, Elek-Fisk, & Gallay, 2004; Rose & Rudolph, 2006). In light of work showing that an individual's own behavior colors the lens through which they see the actions of others (Nucci, Guerra, & Lee, 1991), adolescents' personal substance use is also considered.

Developmental Underpinnings

In addition to evaluating perceived harm and several unique social and behavioral factors, these studies examine the role of age using a mix of quantitative longitudinal and qualitative cross-sectional methods. The cascade of developmental changes co-occurring during adolescence provides an interesting backdrop for understanding developmental differences in the ways adolescents respond to the tobacco and drug use of others. Particularly relevant to these studies are the advances that occur in sociocognitive development and with the normative appearance of tobacco and drug experimentation between the ages of 10 and 18.

Although children as young as preschool age are capable of help-giving and other-oriented behavior (see Grusec, Davidov, & Lundell, 2002), the capacity to think abstractly, take the perspective of others, and evaluate the broader consequences of various courses of action becomes markedly developed in adolescence (Eisenberg & Morris, 2004; Hatcher, Hatcher,

Berlin, Okla, & Richards, 1990). Pairing these developments with the increased autonomy that allows adolescents to form relationships with a broader circle of others creates a developmental window ripe to cultivate social responsibility. That is not to say, all young people behave responsibly (or, do so all the time), but that by adolescence most have the capacity to do so. When confronted with a peer's risky behavior, adolescents are more capable than they were as children of considering the consequences their peer's behavior may have on others as well as their responsibilities – as a friend or as a sibling – to take action.

Yet, this increased awareness of others does not exist in a vacuum. But, rather, it is balanced against a host of competing considerations. In the context of peer tobacco and drug use, the most relevant of these considerations is adolescents' beliefs regarding substance use. Experimentation with substance use becomes increasingly normative during this period. Statistics from national surveys of students attending public and private secondary schools in the United States illustrate rising rates of lifetime tobacco and marijuana use, respectively, between eighth (21%; 15%), tenth (32%; 30%), and twelfth (45%; 43%) grade (Johnston, O'Malley, Bachman, & Schulenberg, 2009). These increased rates of use coincide with changes in adolescents' perceptions of risk behavior as well as other health beliefs. For example, perceptions of substance use as harmless (Johnston et al., 2009), as beneficial (Goldberg, Halpern-Felsher, & Millstein, 2002), and as an individual right (Nucci et al., 1991) typically increase between early and late adolescence. While one could argue that any (or all) of these trends might undermine an adolescent's inclination toward intervening in or taking issue with the substance use of a peer, the idea of substance use being solely a matter of personal discretion is the most at odds with the tenets of social responsibility. In other words, endorsement of substance use as a choice best left to individuals implies that it is an issue of individual, not social, responsibility. This belief becomes most prevalent between early and middle adolescence (Flanagan, Stout, & Galloway,

2008), but – irrespective of age – begins to breakdown when adolescents perceive an individual's choice to use as having negative consequences for others (Killen, Leviton, & Cahill, 1991).

Reconciliation of consideration for others with one's own beliefs can be contentious for adolescents and adults, alike. However, as will be illustrated in these studies, adolescents appear to have developed nuanced ways of balancing (e.g., use of diverse intervention strategies to minimize the involvement of adults) and reasoning (e.g., stipulation of safe use conditions) about these seemingly orthogonal commitments.

Description of Dissertation Studies

Adolescents are confronted daily with decisions about whether or not to act on behalf of others. While most of these situations are trivial, some are not. Yet, we know very little about how they respond when confronted with these types of situations or the factors that prime their reactions. To believe that all adolescents have a natural proclivity toward taking action to intervene in the tobacco and drug use of their peers would be exceedingly optimistic. Competing interests, worldviews, and rationalized concerns (e.g., fear of being ostracized, diffusion of responsibility), can make putting aside self interests for the betterment of others difficult. As a result, offering assistance is just one of several response strategies adolescents may consider when confronted with a situation where a peer needs help. Thus, these studies consider adolescents' endorsement of non-help giving strategies in tandem with direct and indirect intervention strategies. Use of person-centered methodologies will allow me to identify subgroups based on the patterning of adolescents' endorsement of both help and non-help giving across a variety of contexts, thereby producing a more realistic portrayal of how adolescents respond to peers' tobacco and drug use.

Guided by the notion that friends look out for one another, Study 1 explores how adolescents respond to hypothetical situations where a friend takes up smoking and another where a friend is suspected of using drugs. Much of the extant research examining adolescents'

influence on friends' alcohol, tobacco, and other drug use has focused almost entirely on their negative influence (Dodge, Dishion, & Lansford, 2006). Moreover, the normative nature of substance use experimentation in adolescence minimizes young people's perception of tobacco and drug use as harmful (Johnston et al., 2009). Drawing exclusively from this literature one might assume that adolescents would respond to the substance use behaviors of friends by either joining in or ignoring the situation. However, emerging empirical evidence suggests neither of these responses adequately reflect the full spectrum of adolescents' reactions to friends' risk behavior (e.g., Flanagan et al., 2004). Using a latent variable mixture modeling approach, Study 1 tests whether adolescents can be profiled based on their likelihood of using various response strategies (e.g., talk to the friend, talk to an adult, end the friendship, ignore the situation) and whether these profiles vary across adolescence. Additionally, using data over two years, I examine how these profiles change as adolescents age as well as how attitudinal and behavioral factors may predict this change/stability.

Study 2 uses textual analysis to provide rich qualitative representations of how adolescents respond to a peer's marijuana use and whether their responses differ when a younger sibling becomes implicated in the behavior. To assess adolescents' responses, they were presented with the following hypothetical vignette: "Susan smokes marijuana. She only smokes at home while listening to music or visiting with a few friends. She doesn't think this is a big crime and she doesn't believe that it is anybody else's business." Four follow-up questions were used to structure participants' written open-ended responses: (a) "Do you agree with Susan?," (b) "Why or why not?," (c) "What if Susan lets her younger sister join in?," and (d) "Why?" The compound nature of this question allowed one to explore how adolescents reason about marijuana use in terms of the self and others. Previous research reveals that while adolescents generally endorse substance use as a matter of personal choice, this support wanes when an individual's behavior is perceived as having negative repercussions for others (Glantz & Jamieson, 2000; Killen et al.,

1991). Comparing how adolescents respond to a peer's marijuana use (presented first) with their reaction to a sibling offering marijuana to a younger sister (presented as a follow-up) allowed me to discern whether adolescents' acceptance and justification about marijuana use changed when the risks extended beyond the self. Irrespective of their support (or lack thereof) for a peer's marijuana use, I posited most adolescents – out of concern for the potentially negative consequences for the sibling (i.e., an “other”) and the role responsibilities of older siblings – would not support the idea of offering marijuana to others.

Using two unique person-oriented approaches and drawing from both quantitative and qualitative data sources, these studies allow me to study individuals based on their pattern of responses (Bergman & Magnusson, 1997). The latent variable modeling methods used in Study 1 inductively identifies subgroups of individuals who exhibit similar response patterns (Lanza, Flaherty, & Collins, 2003). Likewise, the textual analysis across adolescents' responses to each of the four open-ended questions in Study 2 permits the identification of patterns of self- versus other-oriented reasoning within individuals. Unlike variable-oriented methodological approaches, person-oriented approaches do not assume the sample is homogeneous, but instead allows for the identification of qualitatively different groups of individuals. As a complement to the person-oriented approach, variable-oriented methods were used to identify covariates of the various typologies (see Bergman & Trost, 2006). Collectively, these studies contribute importantly to our understanding of adolescents' responsiveness to situations where a peer may require help, as well as provide insight into the developmental underpinnings of social responsibility in adolescence.

Study 1

Developmental Change in Adolescents' Responses to Friends' Substance Use

Adolescents frequently encounter situations where they have to decide whether or not to intervene in the risk behaviors of their friends. Yet we know very little about this decision-making process or the factors that prime their reactions. Much of the extant research examining adolescents' influence on friends' alcohol, tobacco, and other drug (ATOD) use has focused almost entirely on their negative influence (Dodge, Dishion, & Lansford, 2006). Drawing exclusively from this literature one might assume that adolescents would respond to the ATOD behaviors of friends by either joining in or ignoring the situation. However, emerging empirical evidence suggests neither of these responses adequately reflects the full spectrum of adolescents' reactions to friends' risk behavior (Flanagan, Elek-Fisk, & Gallay, 2004; Hawkins, Pepler, & Craig, 2001; Rigby & Johnson, 2006). Contrary to the stereotype of adolescent friends as deviant influences, many adolescents report that they encourage their friends to avoid health-compromising behaviors (Flanagan et al., 2004; Marcell & Halpern-Felsher, 2007).

The purpose of the present study is to explore how adolescents respond to two hypothetical situations: in the first, a friend takes up smoking and, in the second, a friend is suspected of using drugs. Applying a person-centered approach, I test whether adolescents can be profiled based on their reported likelihood of using different response strategies (e.g., talk to the friend, talk to an adult, end the friendship, ignore the situation). Additionally, using data over two years, I examine how these profiles change as adolescents age as well as how attitudinal and behavioral factors may predict this change or stability.

Friends as Allies in Prevention

Friends stick up for each other, watch each other's backs, and share private details about their lives. The bonds of friendship become increasingly important during adolescence (Goodnow

& Burns, 1985; Hartup, 1993; Rose & Asher, 2000), a time when young people are also likely to experiment with risk behaviors. Nevertheless, when it comes to using ATOD, it is unclear what it means for adolescents to look out for their friends. In some friendships it may mean keeping knowledge of one another's ATOD use private; in others, it may mean discouraging such behavior.

To be sure, not all adolescents will intervene in the risk behaviors of friends. Research on the role of adolescent friends as co-conspirators, -users, and -instigators has documented the powerful effect of negative peer pressure (Gardner & Steinberg, 2005; Kosterman, Hawkins, Guo, Catalano, & Abbott, 2000). Nonetheless, a myopic focus on friends as sources of negative social influence has led us to overlook a growing body of research illustrating that adolescents can also have a positive social influence on their friends' behaviors (Berndt, 1992; Flanagan et al., 2004; Keefe, 1994; Maxwell, 2002). Whether standing up for friends who are being treated unfairly or discouraging unhealthy choices, there is ample evidence that adolescent friends can be positive sources of support (Ennett & Bauman, 1994; Estrada, 1995; Flanagan et al., 2004; Gini, Albiero, Benelli, & Altoè, 2008; Killen & Turiel, 1998; Maxwell, 2002; Rigby & Johnson, 2006; Salmivalli, 2001).

In fact, helping one another is an expectation that most adolescents consider a mark of friendship (Rose & Asher, 2004). That belief extends to health issues, as work by Marcell and Halpern-Felsher (2007) reveals. As part of a medical study, they presented a sample of late adolescents with four health-related scenarios: pneumonia, cigarette addiction, sexual activity, and depression. With the exception of situations relating to sex, adolescents overwhelmingly felt it was important for young people to get help and ranked friends as important confidantes and resources (see also Boldero & Fallon, 1995). Suicide research tells a similar story: adolescents experiencing suicidal thoughts are most likely to confide in their friends and turn to them for emotional support (Henning, Crabtree, & Baum, 1998). While developmentalists traditionally

recognize friendships as important prosocial resources in childhood and adulthood, rarely do we extend this same positive tone to friendships in adolescence (see Crosnoe, Cavanagh, & Elder, 2003), particularly in contexts involving risky behaviors and ATOD use. That is, while we know that adolescent friends can be allies who encourage ATOD use, we have less knowledge of the potential of friends to act as allies in prevention.

The social psychology literature on bystander behavior provides important insight into how the nature of relationships affects whether people take action to help others. Darley and Latané (1968), for example, found that the bystander effect (i.e., seeing or knowing of an emergency and failing to respond) is shown within groups of strangers, but not within cohesive groups. Adolescents who report feelings of cohesion or connectedness to group members are more inclined than those who do not to take action on their behalf (Rutkowski, Gruder, & Romer, 1983; Syvertsen, Flanagan, & Stout, 2009). Thus, feeling a sense of connection and belonging to a group makes one more likely to act in ways that protect the interests of other group members. Extending these findings to adolescent friendships suggests that the feelings of caring that exist between adolescent friends may make it more likely that they will intervene when they perceive a friend's behavior to be dangerous.

Adolescents' experimentation with alcohol, tobacco, and other drugs is an inherently social phenomenon (Gardner & Steinberg, 2005; Steinberg, 2003), meaning that friends are likely to be present during these activities. As a result, friends are often better positioned than parents or other adults to protect each other from the risks associated with ATOD. Investigation into the social settings of underage drinking revealed that 77% of ninth graders and 88% of twelfth graders who had initiated drinking last consumed alcohol in the company of friends, whereas less than 5% of either group reported being alone (Mayer, Forster, Murray, & Wagenaar, 1998). Likewise, research on smoking behavior indicates that experimentation with tobacco and habitual smoking also typically occurs with friends (Ennett & Bauman, 1994; Maxwell, 2002). Friends

present during these ATOD activities often engage in the same behavior: adolescents, much like adults, usually select friends who share their beliefs and interests (Hamm, 2000).

Studies investigating the role of peers in ATOD use substantiate the need for more nuanced investigations into the social influence of adolescent friends. Research exploring friends' influence on adolescent risk behaviors (e.g., marijuana use, sexual debut) led by Maxwell (2002) found that while friends who engage in similar risks do not pressure one another to avoid these behaviors, adolescents who do not engage in these risk behaviors do positively influence their friends to stop or avoid risky activities. Keefe's (1994) study of seventh, ninth, and eleventh graders' perceptions of pressure from friends to use alcohol revealed that most adolescents feel their friends pressure them *not* to use alcohol, although this perception of positive peer pressure faded somewhat after seventh grade. While undoubtedly peer influence to use ATOD is prevalent (Sieving, Perry, & Williams, 2000), research suggests that some adolescents do use their capacity as friends to persuade others to make safe, healthy choices (e.g., Flanagan et al., 2004).

Factors that Influence Adolescents' Responses to Friends' ATOD Use

The moral, social, health, developmental, and interpersonal factors that form our identities come into play in the split second it takes to decide how to respond to a friend's ATOD use. Ultimately, our response is rooted in our assessment of the situation as well as our own behavior and value systems. Here six factors are examined: the age and sex of the adolescents, his/her sense of social responsibility, commitment to an individual's autonomous health rights, perceived safety of ATOD, and personal ATOD use.

Age. Previous cross-sectional studies of adolescents' reactions to vignettes concerning friends' hypothetical ATOD use (Flanagan et al., 2004) and a peer's plan to "do something" dangerous at school (Syvertsen et al., 2009) identified significant age differences in the way that early, middle, and late adolescents would respond. Compared to early adolescents, middle and late adolescents were far less likely to say they would intervene (see Flanagan et al., 2004;

Flanagan, Stout, & Gallay, 2008; Rigby & Johnson, 2006). Flanagan and colleagues (2004) found that younger adolescents were more likely to say they would talk to a friend and try to convince them of the harmfulness of substances, whereas older adolescents were more inclined to report they would ignore their friend's behavior. Beliefs about individuals' rights to privacy and the efficacy of intervening also varied by age. Older adolescents strongly endorsed feelings that it was "none of their business," that it "might be embarrassing," or would do "no good" as justification for their inaction. When asked to rate their willingness to seek the assistance of adults generally, or parents specifically, to help handle the dilemma, it was observed that older adolescents were significantly less likely than younger adolescents to judge that this was a viable option (Flanagan et al., 2004; Syvertsen et al., 2009). Given the natural progression away from adults toward a more peer-centered orientation from preadolescence to emerging adulthood (Youniss & Smollar, 1985), it is hardly surprising that older adolescents prefer – whenever possible – to handle matters on their own.

Sex. Several studies show that male and female adolescents respond to their friends' ATOD use differently. This difference in responding is consistent with sex differences in adolescent friendships (see Rose & Rudolph, 2006). For example, Flanagan and colleagues (2004) found that female adolescents were more likely than their male peers to say they would talk to friends about smoking, drinking, and drugs and less likely to say they would ignore the behaviors or terminate the friendship. The female penchant to look out for others also emerges in some bullying research studies (Salmivalli, Lagerspetz, Björkqvist, Österman, & Kaukiainen, 1996) although other work finds no or weak sex differences (O'Connell, Pepler, & Craig, 1999; Rigby & Johnson, 2006). Other research indicates that female teens tend to express more intimacy, communicate more openly, and resolve conflicts more readily in their relationships than do their male peers (Maccoby, 1990; Parker & Asher, 1993; Rose & Asher, 1999). Compared to males, females also report a greater sense of responsibility for helping friends (see Rose &

Rudolph, 2006) and a greater sense of guilt for neglecting norms of compassion (Williams & Bybee, 1994).

Social responsibility. Developmental research on autonomy and commitments to the rights of individuals and on socio-moral reasoning lead to different predictions about the relationship between age and intent to intervene in friends' ATOD use. With respect to the latter, moral and prosocial development studies show that between early and late adolescence young people become increasingly adept at understanding the consequences of their actions and sympathizing with abstract others who may be impacted by their choices (Eisenberg & Morris, 2004; Hoffman, 2000). Compared to children, adolescents weigh the costs of their decisions less in terms of the self, making them more other-oriented (Eisenberg, 1986). In other words, compared to children and early adolescents, older adolescents possess a more sophisticated understanding of their social responsibilities as well as deeper appreciation of the potential impact their behavior (or, those of their friends) may have on others. To the extent that adolescents (at any age) espouse a more other-oriented worldview, they should feel obliged – whenever possible – to take action to help others (e.g., intervening in friends' ATOD use). Of course, at the same time, commitment to individuals' right to make independent choices (including health risks) increases while beliefs in the negative consequences of ATOD use to others decreases (Flanagan et al., 2008).

Autonomous health rights. The desire for personal autonomy intensifies across adolescence (Fulgini, 1998; Smetana, 1989, 1995) with middle and late adolescents relying less than early adolescents on their parents' beliefs and opinions when making decisions (Zimmer-Gembeck & Collins, 2003). Often, adolescents' sense of autonomy over personal health decisions transcends the self and is a right they also extend to others, particularly as they get older (Flanagan et al., 2008; Kuther & Higgins-D'Alessandro, 2000; Nucci, Guerra & Lee, 1991). That is, studies show that middle and late adolescents are more likely to support other people's

autonomous right to decide what is best for themselves – even if it involves a threat of personal harm – than are early adolescents (e.g., Berkowitz, Guerra, & Nucci, 1991; Killen, Leviton, & Cahill, 1991; Ruck, Peterson-Badali, & Day, 2002). Thus, support for autonomous health rights should positively predict adolescents' intentions to ignore the risk behaviors of their friends (see Flanagan et al., 2008). Furthermore, developmental patterns in adolescents' sense of autonomy suggest this relationship will hold particularly true for older adolescents who, compared to their younger peers, more ardently support the right for individuals to make independent health decisions.

Perceived safety of ATOD use. Advances in the study of developmental neuroscience suggest that young people do not have fully mature psychosocial capacities until young adulthood which, consequently, accounts for increased levels of risk-taking, particularly experimenting with ATOD (e.g., Moffitt, 1993) during adolescence (Steinberg, 2007). At the same time, perceptions of risk vary by the age of the adolescent and the particular substance used. Cross-sectional comparisons of eighth, tenth, and twelfth grade adolescents' perceived risk of alcohol, cigarette, and marijuana use from the mid-1990s onward reveal moderate perceptions of risk with those in the younger grades consistently identifying use as more harmful than their older peers (Johnston, O'Malley, Bachman, & Schulenberg, 2009). Killen and colleagues' (1991) evaluation of the relationship between perceived danger and judgment of a behavior as either moral or personal revealed that the more dangerous a substance (e.g., caffeine vs. cocaine) the less likely adolescents were to endorse its use as a matter of personal choice. Correspondingly, an inverse relationship exists between perceived risk of ATOD and use: adolescents who believe a substance is dangerous are less likely to use it (Johnston et al., 2009). Extending this association to friends' ATOD use would suggest that the more dangerous adolescents perceive ATOD use to be, the more likely they should be to stop a friend from using or to disassociate from the friend, and the less likely they should be to ignore the behavior.

Personal ATOD use. National ATOD use trends reveal that adolescents' alcohol, tobacco, and marijuana use increases as they get older (Johnston et al., 2009). It logically follows that, regardless of age, adolescents who do not use ATOD are more likely than those who do to perceive substance use as harmful and morally wrong. Adolescents who report high rates of ATOD use are more inclined to believe their ATOD behaviors are private matters over which they have sole jurisdiction (Nucci et al., 1991). Interestingly, when asked if their friends have the right to regulate their ATOD use, both high and low ATOD using adolescents report a modest level of agreement. Drawing from this literature, this study posits that ATOD-using adolescents will be more prone to ignore their friends' tobacco and drug use than to intervene.

Aims for Current Study

How adolescents respond to friends' ATOD use is, for all practical purposes, impossible for researchers to observe. However it is reasonable to think that an underlying (unobserved) latent classification structure exists –with some adolescents being interveners, some ignorers, etcetera – and that where adolescents fit into that classification structure may change with age. Latent transition analysis (LTA), a model grounded in the framework of latent class theory (e.g., Goodman, 1974), allows researchers to classify individuals into mutually exclusive and exhaustive groups based on a set of characteristics and to examine how group membership changes over time (Lanza & Collins, 2008). These subgroups are referred to as latent statuses. In these analyses, the characteristics of interest are adolescents' willingness to endorse different proactive and passive response strategies when confronted with a hypothetical friend's substance use. Unlike variable-oriented approaches, LTA allows us to acknowledge the heterogeneity that exists within and between participants, and empirically construct a more accurate reflection of reality because we can capture the fact that many adolescents simultaneously endorse multiple response strategies. In addition to identifying the underlying latent classification structure over time, differences with age are explored along with select covariate predictors of adolescents'

latent status membership, including sex, social responsibility, autonomous health rights, perceived safety of ATOD, and personal ATOD use.

Method

Data come from the three-wave (with one year intervals) longitudinal Social Responsibility and Prevention Project. The purpose of this project was to understand what factors motivate young people to help others make safe, healthy choices. As part of this study, adolescents completed annual questionnaires with items related to personal substance use and norms, beliefs about the public and private consequences of risk behaviors, and the likelihood of using various response strategies when presented with scenarios where harm is implied (see Flanagan et al., 2004; Flanagan et al., 2008; Syvertsen et al., 2009). These analyses focus on data collected during the first (T1; 2002) and third (T3; 2004) waves of the study.

Procedures

Surveys were administered to adolescents in their 45-minute classes in the spring semester of each school year. Active parental consent and adolescent assent were required to participate. The overall response rate was 79%. Of those participants who returned parental consents, the refusal rate varied by district, ranging from 5 to 10%. Less than 5% of participants in any of the districts refused or gave unusable survey data.

Missing Data

To be included in the analyses, adolescents needed to: (a) indicate the likelihood of using at least one response strategy at T1 and T3, (b) provide complete data on the covariates at T1 and T3, and (c) state their age. Missing data on the variables of interest are believed to be missing at random. Parameters are estimated by maximum likelihood using the EM algorithm (Lanza, Lemmon, Schafer, & Collins, 2008). Use of this procedure allows me to utilize data from participants who may not have responded to all of the response strategy (i.e., indicator) variables. As missing data on the covariates cannot be accounted for in the LTA model, the sample was

restricted to participants with complete covariate data at T1 and T3. Additional detail regarding patterns of missingness can be found in Table 1-2.

Participants

Seven hundred ninety one adolescents were recruited from classes in six rural, urban, and semi-urban school districts, five from a mid-Atlantic state and one from a Midwestern state. Fifty-five percent of participants were female. Participants' age, at T1, ranged from 10-15 years¹. Adolescents were categorized into two groups based on their T1 age: early adolescents (10-12 years of age) and middle adolescents (13-15 years of age). Participants' ethnic background was 75% European-, 12% African-, and 6% Latino-American. An additional 7% of participants self-identified as being another ethnicity. The majority of participants reported that their parents had graduated from high school (Mothers: 32%; Fathers: 31%), received some college education (Mothers: 41%; Fathers: 36%), or earned a college degree (Mothers: 23%; Fathers: 29%).

Measures

All of the measures used in the present study are based on adolescents' self-assessments. To model change over time, I examined data on the response strategies and covariates at both T1 and T3. Participants were required to provide data on a minimum of two variables in order to receive a mean score on a scale.

Response to friends' ATOD use. Assessing how adolescents respond to the risk behaviors of their friends is difficult to observe. To circumvent this issue, participants were presented with two vignettes, described in Table 1-1 and developed for this study (see Flanagan et al., 2004), that concentrate on two ATOD behaviors: smoking cigarettes and using drugs. No explicit harm to the friend or others is made in either vignette, leaving participants to self-assess the risk implied in using tobacco and other drugs.

Following each vignette, participants were asked, "How likely is it that you would do each of the following?" Adolescents responded to each response strategy using a Likert scale

ranging from *Very Unlikely* (1) to *Very Likely* (5). The likelihood of four different response strategies – talk to the friend, talk to an adult, ignore the situation, and end the friendship – was measured. Parallel sets of response strategies were asked for each vignette.

Social responsibility. Four items, a subset drawn from Pancer, Pratt, Hunsberger, and Alisat's (2007) Youth Social Responsibility Scale, were used to gauge participants' feelings of responsibility for others (T1 $\alpha = .79$; T3 $\alpha = .82$). Adolescents were asked to respond to each item (e.g., "People should help one another without expecting to get paid for it") by indicating their level of (dis)agreement on a 5-point scale, *Strongly Disagree* (1) to *Strongly Agree* (5).

Autonomous health rights. A measure was created (see also Flanagan et al., 2008) to assess participants' endorsement of the belief that individuals have a right to make personal choices about their behavior – even if the behavior is dangerous (T1 $\alpha = .70$; T3 $\alpha = .80$). The scale consists of four items like, "It's my body, I can do what I want with it." In response to these items, participants rated their level of (dis)agreement on a 5-point scale ranging from *Strongly Disagree* (1) to *Strongly Agree* (5).

Perceived safety of ATOD use. Participants' perceptions of ATOD use as safe was measured using four items (e.g., "Having a few drinks at a party is not going to hurt anyone"). The reliability of this scale, at both waves, was adequate (T1 $\alpha = .70$; T3 $\alpha = .74$). Responses to each item were scored on a 5-point *Strongly Disagree* (1) to *Strongly Agree* (5) scale. Hence, higher scores denote the belief that ATOD use is safe.

Personal ATOD use. Adolescents' personal substance use behavior was assessed by asking them to report how often they use: cigarettes; beer, wine, or liquor; and, marijuana. The original 6-point response scale was highly skewed toward non-use. Consequently, use of each substance was recoded into a dichotomous variable to differentiate between non-users (*Never*) and users (*Once or twice ever* to *More than twice a week*).

Analytic Strategy

Data were analyzed using PROC LTA (Lanza et al., 2008), a SAS procedure for latent transition analysis. Three sets of parameters were estimated in the LTA statistical model: item-response probabilities conditioned on status membership and time, latent status membership probabilities, and transition probabilities between latent statuses over time (Chung, Park, & Lanza, 2005; Lanza & Collins, 2008). The LTA model was expanded to include multiple-group analyses, covariate predictors of latent status membership, as well as predictors of latent transition probabilities. To minimize estimation problems due to sparseness, a data-derived prior was invoked to stabilize the model (Lanza et al., 2008). Additional details about LTA models and an empirical example appear in Lanza, Lemmon, Schafer, and Collins (2008) and Lanza and Collins (2008), respectively.

Results

Research Question 1: Can adolescents be profiled into subgroups based on their willingness to endorse different strategies when confronted with a friend's tobacco and drug use? How does the probability of latent status membership change over time? Does it differ for early and middle adolescents?

Model specification. Despite having two indicators of each strategy (i.e., one per vignette), they were entered into the model separately. Doing so made it possible to test whether adolescents' response to friends' ATOD use was substance specific. Specification of the LTA model required that each of these indicators be categorical. To concentrate the analysis on those response strategies strongly endorsed by participants, a score of "1" was assigned to a response of *Very Likely* or *Likely* and a score of "0" to a *Neutral*, *Unlikely*, or *Very Unlikely* response. The frequency distribution at Time 1 (T1) and Time 3 (T3) of each latent status indicator, along with descriptive information for each covariate, can be found in Table 1-2.

Model selection. The best model balances fit, parsimony, and interpretability. A series of models with varied (i.e., 2-5) numbers of latent statuses were analyzed (using 100 random

starting values each) to identify the model that most closely represents the data. Models were compared (see Table 1-3) using the primary fit indices: likelihood-ratio G^2 statistic, degrees of freedom, Akaike's information criterion (AIC; Akaike, 1974), and Bayesian information criterion (BIC; Schwartz, 1978). Incremental decreases in the AIC and BIC up to the 4-status model suggests improvement in fit, whereas the increase in the BIC between the 4- and 5-status solutions does not. The fit statistics combined with the interpretability and satisfactory identification (i.e., the modal G^2 of the 4-status solution was also the lowest in 86 out of 100 random starting values) of the solution indicates the 4-status model has the best overall fit.

To determine whether the item-response probabilities should be constrained to be equal or allowed to vary across time, measurement invariant and freely estimated versions of the 4-status LTA model were compared. The statistically nested nature of these models allows them to be compared based on the difference in G^2 and degrees of freedom which, in turn, were evaluated against the chi-square distribution (Lanza, Flaherty, & Collins, 2003). As was expected due to the overly sensitive nature of the omnibus test, the G^2 difference for the 4-status model was significant, $\Delta G^2 = 92.29$ with 32 *df*, $p < .001$. The statistical difference indicates that the item-response probabilities were not equivalent at T1 and T3. However, careful examination of the item-response probabilities revealed only trivial differences (i.e., not practically significant) between the two models with the interpretation of each of the four latent statuses being identical (see the model with time freely estimated in Appendix 1-A). Comparisons of the AIC and BIC indices for the two models provided mixed support for the best fitting model; the freely estimated model had the lowest AIC, while the measurement invariant model had the lowest BIC. In light of the similarity in model interpretation, I selected the more parsimonious model with T1 and T3 item-response probabilities constrained to be equal.

Latent status descriptions. Four latent statuses best represent the data. The following interpretational labels have been assigned: Intervene-End Friendship, Intervene, Intervene

Directly, Neither Intervene nor Ignore. Latent statuses are defined by the item-response probabilities. In these analyses, I focus on the probability of endorsing each response strategy (i.e., report being *Very Likely* or *Likely* to use the strategy). The four statuses in this model exhibit high homogeneity (i.e., degree to which the item-response probabilities, or rho parameters, are close to 0 or 1 – values which indicate the latent variable completely predicts the indicator variable) and high latent status separation (i.e., degree to which the latent statuses can be clearly distinguished from one another). Despite including parallel response strategy indicators for two substances diverse in their risks and legality, the probability of endorsing a response strategy did not systematically vary by substance with the exception, perhaps, of the ignore indicators in the Neither Intervene nor Ignore status. Thus, these four statuses are not generally defined by their substance-specific responses, but rather their more general pattern of endorsement (or lack thereof) of the various response strategies.

As illustrated by the high item-response probabilities for both intervention strategies (i.e., talk to the friend and talk to an adult) and end the friendship in Table 1-4, adolescents in the Intervene-End Friendship status endorsed the most number of response strategies. These adolescents willingly endorse broaching the subject of a friend's ATOD use with them face-to-face and going to an adult with their concerns; however – should they need to – they are also willing to end the friendship on the basis of the friend's tobacco and drug use. Likewise, those estimated to fit in the Intervene status have a high probability of taking action by talking to the friend and recruiting the assistance of an adult; but, unlike adolescents in the Intervene-End Friendship status, these youth are unwilling to end the friendship. Adolescents in the Intervene Directly status are reluctant to turn to adults for help but have a high probability of being forthright with their friends when they are concerned about their tobacco and drug use. Adolescents in the Neither Intervene nor Ignore status report a low probability of intervening in any way or ending the friendship. Compared to the other statuses, adolescents in this status are

more likely than those in other statuses to ignore a friend's ATOD use (particularly smoking), but they are still more likely in an absolute sense to say that they would ignore the situation altogether. A summary of the probability of giving an affirmative (i.e., *Likely* or *Very Likely*) item response (constrained to be equal across time), prevalence of latent statuses, and transition probabilities in latent status membership is provided in Table 1-4.

Latent status membership and transitions. Adolescents' estimated latent status memberships at T1 were more evenly distributed across the four statuses than at T3 (see Table 1-4). At T1, comparable numbers of adolescents were estimated to fit into the Intervene-End Friendship (20%) and Neither Intervene nor Ignore (21%) statuses with slightly more characterized by the Intervene Directly (26%) and Intervene (33%) statuses. In contrast, by T3 probable membership in the Intervene Directly (+7%) and Neither Intervene nor Ignore (+15%) statuses increased while fewer adolescents were best characterized by the Intervene (-11%) and Intervene-End Friendship (-11%) statuses. Across both occasions of measurement, the Intervene-End Friendship status was the least prevalent.

About half of adolescents in the Intervene (47%) and Intervene Directly (52%) statuses at the beginning of the study retained their membership two years later. Meanwhile, 69% of those fit in the T1 Neither Intervene nor Ignore status were classified in the same group at T3. The Intervene-End Friendship status was the least stable status with only a quarter of adolescents being estimated in the same status at T3. Adolescents originally characterized by the Intervene-End Friendship status were equally likely to be found in any of the four T3 latent statuses. Very few adolescents transitioned into the Intervene-End Friendship category over the period of two years suggesting that as adolescents age they were less likely to endorse ending their friendship on the basis of a friend using tobacco or drugs. Adolescents estimated to transition out of the Intervene status moved mostly into the Intervene Directly status (33%). This transition, considered alongside the decrease in the Intervene-End Friendship latent membership prevalence,

suggests that with age some adolescents are still willing to approach a friend directly with their concerns but no longer support the idea of seeking help from an adult. Note, however, that not all adolescents retained their willingness to intervene: 18% of adolescents in the T1 Intervene status fit in the T3 Neither Intervene nor Ignore status. Membership in the Intervene Directly status remained somewhat stable. However, adolescents estimated to transition away from this status, by and large, moved into the Neither Intervene nor Ignore status (40%). Moreover, nearly two-thirds of adolescents in the Neither Intervene nor Ignore status retained their membership after two years. Few adolescents who reported they would not intervene at T1 espoused a willingness to intervene and/or end the friendship at T3.

Multiple-group LTA. Adolescent age was added to the 4-status LTA model (with, as established above, the item response probabilities constrained to be equal over time) as a grouping variable to identify differences, if any, in early and middle adolescents' item-response probabilities, latent status membership, and transition probabilities (Lanza & Collins, 2008). Placement in the adolescent age groups was determined based on participants' T1 age. At T1, early adolescents were 10 to 12 and middle adolescents were 13 to 15. By T3, early adolescents were 12 to 14 and middle adolescents were 15 to 17. In other words, over the course of these analyses early adolescents became middle adolescents and middle adolescents became late adolescents. However, for the purposes of simplicity, participants will be referred to based on their T1 adolescent age group assignment.

Models with the item-response probabilities estimated freely across groups and constrained to be equal across groups were compared. Significant differences in the item-response probabilities for early and middle adolescents were uncovered ($\Delta G^2 = 74.81$ with 32 *df*, $p < .001$). The freely estimated model had the lowest AIC, while the measurement invariant model had the lowest BIC. Comparison of the freely estimated item-response probabilities for early and middle adolescents again revealed the omnibus test's sensitivity to even slight

differences as the interpretation of the statuses for both groups was very consistent (see the model with time constrained and adolescent age freely estimated in Appendix 1-B and the model with time and adolescent age both freely estimated in Appendix 1-C). Consequently, the 4-status LTA model with the item-response probabilities held invariant across both time and adolescent age was selected.

Table 1-5 displays the prevalence of early and middle adolescents in each latent status. At T1, the Intervene status had the highest rate of membership for early adolescents and the Intervene Directly status had the highest rate of membership for middle adolescents. At T3, the Intervene Directly status had the highest rate of membership for early adolescents (who, as a reminder are now actually middle adolescents) and the Neither Intervene nor Ignore status had the highest rate of membership for middle adolescents (now late adolescents). The Intervene-End Friendship status had the lowest membership for both groups at both time points with the exception of early adolescents at T1 when the Neither Intervene nor Ignore status recorded the lowest membership.

Across time, the general pattern of change within each status is the same for both early and middle adolescents: that is, membership in the Intervene-End Friendship and Intervene statuses decrease over time and membership in the Neither Intervene nor Ignore status increases for both early and middle adolescents. The one exception to this pattern surfaces in the Intervene Directly status where early adolescents experience a large upward shift (+17%) in membership between T1 and T3, while the prevalence remains nearly fairly stable for middle adolescents (-1%). Looking at the prevalence rates across time, and thus with increasing age, clear developmental patterns emerge (i.e., looking down the columns). For example, membership in the Intervene status decreases markedly with age moving from 46% (T1 early adolescents; 10-12 year olds) to 30% (T1 early adolescents; 12-14 year olds) to 21% (T1 middle adolescents; 13-15

year olds) to 11% (T1 middle adolescents; 15-17 year olds). Consistent patterns are similarly shown in the other three latent statuses.

Research Question 2: How do sex, social responsibility, autonomous health rights, perceived safety of ATOD, and personal ATOD use relate to latent status membership at Time 1? How does this differ for early and middle adolescents?

Multinomial logistic regressions were run to test the association between select covariates (i.e., adolescents' sex, autonomous health rights, social responsibility, perceived safety of ATOD, and personal ATOD use) and T1 latent status membership. The continuous covariate predictors were standardized to aid in the interpretation of the effects (Collins & Lanza, 2009). The predictors were analyzed in separate equations, except for the cigarette, alcohol, and marijuana use predictors which were entered simultaneously. The Neither Intervene nor Ignore status is the reference group. Odds ratios greater than 1.0 indicate the increased odds of membership in a T1 latent status, relative to the T1 Neither Intervene nor Ignore status, associated with a one standard deviation *increase* in the covariate; or, in the case of the dichotomous covariates, if you are female, a cigarette user, an alcohol user, or a marijuana user. Odds ratios less than 1.0 indicate the decreased odds of membership in a particular T1 latent status. To ease interpretation, the inverse odds ratio (i.e., 1 / odds ratio) is provided for odds ratios less than 1.0. Inverse odds ratios reflect the increased odds of membership in a T1 latent status, relative to the Neither Intervene nor Ignore status, associated with a one standard deviation *decrease* in the covariate or, being male, a cigarette non-user, an alcohol non-user, or a marijuana non-user.

The top portion of Table 1-6 summarizes the beta estimates and (inverse) odds ratios (OR) for each predictor in the full sample. The effect of each of the covariates was highly significant ($p < .0001$; female and marijuana user $p < .01$). Similar patterns of results emerged for all covariate analyses, except sex, across the latent statuses. For example, a one standard deviation increase in social responsibility was associated with increased odds of being in the

Intervene-End Friendship (OR = 2.55), Intervene (OR = 3.81), and Intervene Directly (OR = 1.73) statuses as compared to the T1 Neither Intervene nor Ignore status. The odds of membership in these statuses, relative to the Neither Intervene nor Ignore status, also increased with a standard deviation decrease in adolescents' autonomous health rights, perceptions of ATOD use as safe, and abstaining from cigarettes, alcohol, and marijuana. For example, the inverse odds ratios for cigarette use, indicates that adolescents who had never smoked a cigarette were 17 times (Inverse OR = 16.67) more likely to be classified in the Intervene-End Friendship status compared to the Neither Intervene nor Ignore status. Interestingly, while the pattern for cigarette, alcohol, and marijuana use are similar across the latent statuses, the associations between non-use and membership in the Intervene-End Friendship and Intervene statuses are stronger than for the Intervene Directly status, relative to the Neither Intervene nor Ignore status. Overall, females had greater odds than their male peers to be fit in the T1 Intervene or Intervene Directly statuses than the Neither Intervene nor Ignore status, while males had greater odds than females of being fit in the Intervene-End Friendship status over the Neither Intervene nor Ignore status.

Entering adolescent age as a grouping variable (see bottom panel of Table 1-6) revealed that only one covariate differentially predicted early and middle adolescents' T1 latent status membership: being female. For both early and middle adolescents, being female showed greater odds of being in the T1 Intervene or Intervene Directly statuses over the T1 Neither Intervene nor Ignore status. Early adolescent females also have higher odds than their male peers of being in the Intervene-End Friendship status rather than the Neither Intervene nor Ignore status at T1; however, like in the overall effect, this does not hold true for females in middle adolescence. In middle adolescence, males have slightly greater odds (Inverse OR = 1.89) than females of being in the T1 Intervene-End Friendship status than the T1 Neither Intervene nor Ignore status. While the strength of the associations between the covariates and the T1 latent status memberships vary

between early and middle adolescents, the general pattern of results for each of the other covariates remains the same.

Research Question 3: Does change in social responsibility, autonomous health rights, perceived safety of ATOD, and personal ATOD use over a period of two years predict the probability that adolescents will be in the Time 3 Neither Intervene nor Ignore status?

Separate binomial logistic regressions were used to test whether change in the covariates predicts adolescents' transition from any of the four T1 latent statuses to the T3 Neither Intervene nor Ignore status. The association between the T1 covariates and T1 latent status membership, illustrated in Table 1-6, were controlled in these models. The odds ratios for the effect of T1 to T3 change in the covariates on probable membership in the T3 Neither Intervene nor Ignore status are summarized in Table 1-7 (all covariates were highly significant, $p < .0001$). Because I am only predicting movement into the Neither Intervene nor Ignore status, the remaining latent statuses are collapsed to form the reference group for each regression (Collins & Lanza, 2009).

As revealed by the odds ratios less than 1.0, increased endorsement of socially responsible beliefs was somewhat associated with a *decreased* probability of transitioning to the T3 Neither Intervene nor Ignore status, relative to transitioning to any other status or staying in the same latent status. In contrast, increased support for autonomous health rights and approval of ATOD as safe was somewhat associated with *increased* odds of transitioning into the T3 Neither Intervene nor Ignore status. Calculating change in adolescent ATOD use required that dummy variables be created to capture change (non-user to user) and stability (remain a user, remain a non-user)². Being a non-user at both time points was the reference. An odds ratio greater than 1 indicates that adolescents who continued to use or started using cigarettes, alcohol, and/or marijuana between T1 and T3 had, compared to their peers who remained non-users, an increased odds of membership in the T3 Neither Intervene nor Ignore status (relative to membership in the other latent statuses combined). The overall pattern of odds ratios for cigarette, alcohol, and

marijuana suggests that adolescents who continued or began using were more likely to be in the Neither Intervene nor Ignore status rather than any of the other statuses two years later. Three exceptions to this pattern emerged (as indicated by the odds ratios less than 1.0), but yielded no consistent themes. The predictive value of adolescents' substance use behavior was strongest for new users who started smoking cigarettes and marijuana and for adolescents initially fit in the Intervene status.

Discussion

When confronted with a hypothetical friend's ATOD use, most adolescents say they would take some form of action to discourage their friend. However, the extent to which particular strategies are favored changes markedly from early to middle to late adolescence. In early adolescence, young people tend to simultaneously endorse multiple strategies (as captured by the Intervene-End Friendship and Intervene statuses), whereas older adolescents are more likely to endorse a specific strategy; primarily, talking to a friend one-on-one or taking no action. As adolescents get older, they generally move away from intervention strategies that involve disclosing their concern to an adult, or severing ties with their friend. Instead, middle and late adolescents prefer to address a friend's ATOD use directly. This desire to handle the issue on one's own likely reflects normative developmental changes occurring during adolescence including, improved communication skills, a greater sense of autonomy, the natural distancing between teens and parents, and increased intimacy with friends. Some parents even agree that – within reasonably safe limits – it is appropriate for older adolescents to handle these situations independently (see Syvertsen, Wray-Lake, & Flanagan, 2010). The appeal of this approach for older adolescents is rational. Though never an easy conversation to broach, talking to a friend about their ATOD use allows adolescents to express their opinions and concern for a friend without involving adults and risking potential consequences (e.g., grounding, athletic

suspension). Moreover, these may be important skills to carry forward into young adulthood when cigarette and alcohol use become legal and more prevalent among their peers.

The majority of adolescents, regardless of age, fit into subgroups characterized by taking action to stop a friend's ATOD use (T1: 79%; T3: 64%). This result is promising and provides a more balanced picture than the existing literature of the social influence friends may have on one another's behavior. Yet, a sizable number of adolescents were not inclined to intervene in a friend's decision to smoke cigarettes or use drugs; a phenomenon that became more prevalent with age (see also Rigby & Johnson, 2006; Salmivalli et al., 1996). This age-related decline in willingness to intervene is worrisome because it is in late adolescence that young people are most likely to find themselves in situations where a friend uses ATOD. Although older adolescents generally adhere more adamantly to the beliefs that ATOD use is a personal choice (Nucci et al., 1991) and poses little danger to users (Johnston et al., 2009), adolescents of any age who espouse these opinions are less willing to take action to stop a friend from smoking cigarettes or using drugs. The same pattern holds for ATOD use: ATOD users rarely see their or their friends' use as problematic (Johnston et al., 2009) which, in turn, makes them disinclined to intervene (see also Maxwell, 2002). Identifying beliefs that undergird inaction suggest potential directions for intervention, specifically altering beliefs such that adolescents are more inclined to intervene on behalf of others.

School-based prevention programs have been tackling the issue of adolescent ATOD use for decades (Tobler et al., 2000). However, few programs incorporate lessons that teach young people how to intervene if a friend is engaging in risky behavior. More typical of these programs are lessons that provide adolescents with information and practice for resisting and avoiding personal ATOD offers from peers (see, for example, Strengthening Families Program; Molgaard, Kumpfer, & Fleming, 2001). As part of these lessons, adolescents are often encouraged to defend their personal decision for abstaining and then to persuade their peers to follow suit (e.g.,

suggesting a healthy alternative activity for yourself and your friend). Absent from most of these lessons, however, are explicit discussions about how, within the bonds of friendship, to tell someone you disagree with their behavior and to offer support. Too often these scenarios end with the suggestion that adolescents leave their peer or friend to their own devices. Such frameworks emphasize personal responsibility for choices but fail to take advantage of the larger context of social responsibility – for one another – that could be a venue for health promotion and risk prevention. Adolescents' willingness to intervene with friends may not translate into behavior if they lack the repertoire of skills necessary to translate their concerns into action. As part of a participatory action research study, Hamilton and Flanagan (2008) invited a group of adolescents to create a film for their peers about intervening in the ATOD behaviors of friends. The young filmmakers found the notion of friends looking out for one another appealing, but struggled to identify concrete actions friends could take to intervene. In the same way that prevention programs have emphasized the imperative of practicing refusal skills, young people also need to practice ways of intervening to dissuade friends from ATOD use or, when necessary, ways to approach an adult and ask for help.

The success of a skills-based program aimed at encouraging adolescents to intervene in the ATOD use of friends may hinge on whether or not adolescents believe they have a responsibility to act. Adolescents who value social responsibility are more likely to take actions that serve the best interests of others. Accordingly, within the context of a friend's ATOD use, social responsibility positively predicts taking some form of action to help a friend. Promoting obligation for the welfare and safety of others might be approached in several ways. For example, in the realm of prevention, social responsibility can be promoted by linking ATOD use to its public consequences. When discussing ATOD with adolescents, parents and educators frequently stress the risks but often stop at the consequences to the individual who is using rather than also discussing the consequences of these actions to others – intimate others and the public at large.

Previous research suggests that adolescents readily understand the risks of ATOD and willingly accept the personal liabilities of their behavior (e.g., Nucci et al., 1991). However, their acceptance of ATOD use begins to break down when they perceive their private ATOD choices as having harmful consequences for others (Killen et al., 1991). By elucidating the connection between adolescent ATOD use and its potential harmful effects on others (e.g., secondhand smoke, drunk driving), educators and parents might better help adolescents understand how their decision to intervene or ignore the ATOD use of a friend can impact the lives and well-being of other people. This approach may be particularly appropriate with older adolescents who possess more sophisticated and more other-oriented thinking strategies (e.g., Eisenberg & Morris, 2004).

Previous research suggests that adolescents perceive drugs to be more dangerous than cigarettes (Johnston et al., 2009) and that, the more dangerous the substance, the less likely it is to be considered a matter of personal choice (Killen et al., 1991). In light of this work it was somewhat surprising to find that adolescents' pattern of endorsement of the response strategies for the cigarette and unspecified drug use vignettes mirrored one another so closely. These results may, in part, be explained by the dramatic negative shift in the public's image of tobacco over the past several decades. In the case of marijuana, comparisons of national trends examining adolescents' perceived risk of smoking a pack or more of cigarettes per day and using marijuana regularly reveals that the overall trends, since the early 1990s, are converging with the perceived risk of cigarettes increasing and the perceived risk of marijuana decreasing (Johnston et al., 2009). Thus, perceptions of the dangers of legal and illegal substances, at least with respect to marijuana, may be very similar. The consistency across vignettes in adolescents' endorsement of the various strategies might also be a reflection of a more global disposition towards (or away from) helping others.

The results of this study should be interpreted with a few considerations in mind. Using vignettes to create hypothetical scenarios where a friend is smoking cigarettes or using drugs,

allowed me to gauge adolescents' willingness to endorse a broad range of response strategies regardless of their personal experience with friends' ATOD use – which, in early adolescence, tends to be quite modest. It is possible, however, that asking adolescents to report their intentions to use different strategies rather than their actual behaviors may have led some to respond in ways that presented them in a more positive light (i.e., provide a more socially desirable answer). Finding evidence of the predicted inverse relationship between ATOD use and intentions to intervene does, however, provide some support for consistency between the hypothetical and the real. Adolescents' intentions to intervene may also be inflated by the very nature of hypothetical situations which tend to be stripped of the emotional and social barriers that make the decision to act in real-life so difficult. Whether adolescents' intentions to intervene in friends' ATOD use translates into action remains unknown (for discussion of the intention-intervention gap in the bullying literature, see O'Connell et al., 1999); however, it is important to note that most prevention programs target behavioral intentions as a means of influencing adolescents' actual behavior. Thus, intentions to intervene and the cognitive and emotional barriers to those intentions seem to be a logical place to start.

Additional research aimed at more fully understanding adolescents who best fit in the Neither Intervene nor Ignore status is needed. Unlike the other subgroups, little is known about how adolescents in this subgroup would respond to the ATOD use of a friend. We only know what they report they will not do: they will not talk to their friend one-on-one, they will not turn to an adult for help, and they will not end the friendship. They are also not clearly defined by their willingness to ignore a friend's ATOD use (although, compared to the other groups, they are the most willing to endorse ignoring as a response strategy). Discovering that adolescents in this group are more likely to be ATOD users, possess pro-ATOD attitudes (e.g., safe, a personal choice), and express lower levels of social responsibility suggests that had willingness to “join in” been assessed it may have defined some of the adolescents estimated to fit into this group. This

study presented participants with a limited range of intervention options. Future work should expand the set of both positive and negative behavioral options.

Adolescents deal, almost daily, with situations where they have to decide whether or not to intervene on behalf of a friend or another individual. The decision about what to say and do when a friend does something you disagree with is difficult, a situation that is often further complicated by a desire to balance care for the friend with respect for their right to make their own choices. Most adolescents understand that, as a friend, they may have an obligation to take action either directly or indirectly to help when someone they care about engages in risky behavior. The challenge now falls on parents, educators, and youth leaders to empower young people to act on these intentions.

Footnotes

¹ Participants ages 16-20 were excluded from the present study as they represented a substantially smaller portion of the T1 sample ($n = 285$; 14%) than early and middle adolescents. Moreover, these older participants had greater amounts of missing data at T3 as many of them aged out of the study due to high school graduation. Because T1 middle adolescents (13-15 years of age) become late adolescents (15-17 years of age) by T3, the data still allow me to demonstrate a clear developmental pattern of change between early and late adolescence.

² To maintain conservative estimates, participants who reported using alcohol, tobacco, or marijuana in their lifetime at T1, but not at T3 were coded as being users at both time points.

Table 1-1.

Vignettes and response strategies.

Vignette	Response Strategy			
	Talk to the Friend	Talk to an Adult	Ignore Situation	End the Friendship
Smoking Tobacco: One of your friends has started smoking. While you are walking to school with some other students, your friend takes out a cigarette.	Tell your friend smoking is bad for their health and they should stop before getting addicted.	Talk to an adult.	Ignore it because it's none of your business.	Stop being their friend.
Using Drugs: You think that one of your friends has started taking drugs.	Try to talk to your friend and try to get them to get help.	Go talk to an adult and ask them for help.	Ignore it because it's none of your business.	Stop being their friend.

Note. Following each vignette, participants were asked to indicate the likelihood that they would respond using each response strategy (1 = *Very Unlikely* to 5 = *Very Likely*).

Table 1-2.

Descriptive statistics.

Variable in model	Code ^a	Label	T1 Frequency (Valid %)	T3 Frequency (Valid %)
Indicator of Latent Status				
<i>Talk to the Friend</i>				
Tobacco	0	Unlikely	210 (26.9)	317 (40.1)
	1	Likely	571 (73.1)	473 (59.9)
	.	Missing	10	1
Drugs	0	Unlikely	229 (30.2)	311 (40.0)
	1	Likely	529 (69.8)	466 (60.0)
	.	Missing	33	14
<i>Talk to an Adult</i>				
Tobacco	0	Unlikely	380 (49.1)	560 (70.8)
	1	Likely	394 (50.9)	228 (28.9)
	.	Missing	17	3
Drugs	0	Unlikely	364 (48.3)	503 (64.6)
	1	Likely	389 (51.7)	276 (35.4)
	.	Missing	38	12
<i>End the Friendship</i>				
Tobacco	0	Unlikely	631 (81.6)	721 (91.3)
	1	Likely	142 (18.4)	69 (8.7)
	.	Missing	18	1
Drugs	0	Unlikely	638 (85.2)	709 (91.4)
	1	Likely	111 (14.8)	67 (8.6)
	.	Missing	42	15
<i>Ignore Situation</i>				
Tobacco	0	Unlikely	651 (83.6)	614 (77.9)
	1	Likely	128 (16.4)	174 (22.1)
	.	Missing	12	3
Drugs	0	Unlikely	672 (88.4)	686 (87.7)
	1	Likely	88 (11.6)	96 (12.3)
	.	Missing	31	9
Covariates				
Sex	0	Male	358 (45.3)	
	1	Female	433 (54.7)	
Social Responsibility	1 – 5	Agreement Scale ^b	$M = 3.94$ $SD = .77$	$M = 3.76$ $SD = .73$
Autonomous Health Rights	1 – 5	Agreement Scale ^b	$M = 3.05$ $SD = 1.01$	$M = 3.06$ $SD = 1.00$
Perceived Safety of ATOD	1 – 5	Agreement Scale ^b	$M = 1.95$ $SD = .85$	$M = 2.08$ $SD = .84$
Cigarette Use	0	Non-User ^c	675 (85.3)	602 (76.1)
	1	User	116 (14.7)	189 (23.9)
Alcohol Use	0	Non-User ^c	554 (70.0)	433 (54.7)
	1	User	237 (30.0)	358 (45.3)
Marijuana Use	0	Non-User ^c	737 (93.2)	680 (86.0)
	1	User	54 (6.8)	111 (14.0)
Grouping Variable				
Age	0	Early Adolescents	396 (50.1)	
	1	Middle Adolescents	395 (49.9)	

Notes. ^a A period in this column represents a SAS system-missing value. ^b Agreement Scale = *Strong Disagree* (1), *Disagree* (2), *Neutral* (3), *Agree* (4), *Strongly Agree* (5). ^c Non-User = Never used substance, User = *Once or Twice Ever to More than Twice a Week*.

Table 1-3.

Comparison of latent transition models with statuses constrained to be equal over time.

Number of Statuses	G^2	LL	df	AIC	BIC	Random Seeds
2	2816.46	-5596.99	65516	2854.46	2943.25	100/100
3	2379.00	-5378.26	65503	2443.00	2592.55	57/100
4	2079.85	-5228.69	65488	2173.85	2393.50	86/100
5	1979.98	-5178.75	65471	2107.98	2407.08	17/100

Notes. G^2 = likelihood ratio statistic. LL = log likelihood. AIC = Akaike's Information Criterion. BIC = Bayesian Information Criterion. Boldface font indicates the selected model.

Table 1-4.

Probabilities of endorsing each strategy, prevalence of status, and transition probabilities in latent status membership.

Parameter		Latent Status			
		Intervene-End Friendship	Intervene	Intervene Directly	Neither Intervene nor Ignore
Item-Response Probabilities^a					
Talk to the Friend	Tobacco	.85	.96	.82	.14
	Drugs	.83	.94	.75	.18
Talk to an Adult	Tobacco	.79	.92	.07	.05
	Drugs	.78	.93	.19	.04
End the Friendship	Tobacco	.78	.04	.02	.03
	Drugs	.69	.03	.03	.02
Ignore Situation	Tobacco	.28	.02	.07	.44
	Drugs	.25	.01	.01	.27
Prevalence of Status					
	Time 1 (Spring, 2002)	.20	.33	.26	.21
	Time 3 (Spring, 2004)	.09	.22	.33	.36
Transitions from T1 (rows) to T3 (columns)^b					
	Intervene-End Friendship	.26	.23	.25	.26
	Intervene	.02	.47	.33	.18
	Intervene Directly	.05	.04	.52	.40
	Neither Intervene nor Ignore	.10	.02	.20	.69

Notes. The probabilities of endorsing a particular response strategy as *Very Likely* or *Likely* are reported. ^a Item-response probabilities are constrained to be equal at both time points. ^b Entries in boldface font indicate membership in the same latent status at both T1 and T3.

Table 1-5.

Prevalence of latent statuses by adolescent age and time.

Adolescent Age and Time		Latent Status			
		Intervene-End Friendship	Intervene	Intervene Directly	Neither Intervene nor Ignore
Early Adolescents	Time 1	.27	.46	.16	.11
	Time 3	.11	.30	.33	.27
Middle Adolescents	Time 1	.11	.21	.37	.32
	Time 3	.06	.11	.36	.47

Note. Item-response probabilities were constrained to be equal over time and across groups.

Table 1-6.

Odds ratios for predictors of latent status membership at Time 1.

Time 1 Covariates	Time 1 Latent Status										
	Intervene-End Friendship			Intervene			Intervene Directly			Neither Intervene nor Ignore	
	β	OR	Inverse OR	β	OR	Inverse OR	β	OR	Inverse OR	β	OR
Overall Effect of Covariates											
Female	-.28	.75	1.33	.53	1.70		.34	1.40		--	1.0
Social Responsibility	.94	2.55		1.34	3.81		.55	1.73		--	1.0
Autonomous Health Rights	-.98	.37	2.70	-1.60	.20	5.00	-.91	.40	2.50	--	1.0
Perceived Safety of ATOD	-.65	.52	1.92	-1.10	.33	3.03	-.63	.53	1.89	--	1.0
Cigarette User	-2.87	.06	16.67	-2.13	.12	8.33	-1.35	.26	3.85	--	1.0
Alcohol User	-1.61	.20	5.00	-1.88	.15	6.67	-.32	.73	1.37	--	1.0
Marijuana User	-2.65	.07	14.29	-2.60	.07	14.29	-1.36	.26	3.85	--	1.0
Effect for Early Adolescents											
Female	.27	1.31		.96	2.62		1.12	3.06		--	1.0
Social Responsibility	.88	2.42		.97	2.65		.43	1.54		--	1.0
Autonomous Health Rights	-.68	.51	1.96	-1.22	.29	3.45	-.79	.46	2.17	--	1.0
Perceived Safety of ATOD	-.52	.59	1.69	-.76	.47	2.13	-.58	.56	1.79	--	1.0
Cigarette User	-2.60	.07	14.29	-1.44	.24	4.17	-.88	.41	2.44	--	1.0
Alcohol User	-1.48	.23	4.35	-1.90	.15	6.67	-.38	.68	1.47	--	1.0
Marijuana User	-1.26	.28	3.57	-1.43	.24	4.17	-2.68	.07	14.29	--	1.0
Effect for Middle Adolescents											
Female	-.63	.53	1.89	.41	1.51		.003	1.00		--	1.0
Social Responsibility	.48	1.61		1.41	4.11		.64	1.89		--	1.0
Autonomous Health Rights	-1.10	.33	3.03	1.66	.19	5.26	-.83	.44	2.27	--	1.0
Perceived Safety of ATOD	-.60	.55	1.82	-1.50	.22	4.55	-.70	.50	2.00	--	1.0
Cigarette User	-2.23	.11	9.09	-2.12	.12	8.33	-1.39	.25	4.00	--	1.0
Alcohol User	-1.42	.24	4.17	-1.42	.24	4.17	-.44	.64	1.56	--	1.0
Marijuana User	-2.49	.08	12.50	-2.44	.09	11.11	-1.13	.32	3.13	--	1.0

Notes. All covariates were analyzed in separate multinomial logic regressions, exception cigarette, alcohol, and marijuana use which were entered simultaneously. The social responsibility, autonomous health rights, and perceived safety of ATOD scales were standardized. Dashes indicate the reference status. The effects of all covariates were highly significant ($p < .0001$), except for sex and marijuana use which were significant at $p \leq .01$ (Overall and Multi-Group Analyses).

Table 1-7.

Odds ratios for predictors of probable membership in the Neither Intervene nor Ignore status at Time 3.

Time 1 Latent Status	Binomial Logistic Regression Coefficients for the Effect of Time 1 to Time 3 Δ in Covariates on Probable Membership in the Neither Intervene nor Ignore Status at Time 3								
	Social Responsibility	Autonomous Health Rights	Perceived Safety of ATOD	Cigarette Use		Alcohol Use		Marijuana Use	
				Remains a User	Non-User to User	Remains a User	Non-User to User	Remains a User	Non-User to User
Intervene-End Friendship	.84	1.17	1.08	.45	4.14	2.89	.98	3.60	1.61
Intervene	.54	1.61	1.49	14.39	17.93	8.10	2.95	5.09	48.38
Intervene Directly	.83	1.69	1.22	3.91	7.27	4.15	2.40	1.61	13.46
Neither Intervene nor Ignore	.81	1.32	1.11	2.21	3.01	1.98	2.56	.65	2.35

Notes. All covariates were analyzed in separate binomial logic regressions. Change between T1 and T3 in social responsibility, autonomous health rights, and perceived safety of ATOD was standardized. To capture the change (non-user to user) and stability (T1-T3 user, T1-T3 non-user) for participants' cigarette, alcohol, and marijuana use, two dummy-coded variables were created. Being a non-user at both T1 and T3 is the reference. The effects of all covariates were highly significant ($p < .0001$).

Appendix 1-A.

Probabilities of endorsing each strategy in the LTA model with time freely estimated.

Item-Response Probabilities		Latent Status			
		Intervene-End Friendship	Intervene	Intervene Directly	Neither Intervene nor Ignore
Time 1 Model					
Talk to the Friend	Tobacco	.88	.93	.88	.16
	Drugs	.88	.92	.71	.22
Talk to an Adult	Tobacco	.82	.93	.12	.06
	Drugs	.81	.93	.12	.10
End the Friendship	Tobacco	.82	.05	.02	.03
	Drugs	.70	.02	.04	.02
Ignore Situation	Tobacco	.20	.04	.04	.45
	Drugs	.20	.02	.00	.31
Time 3 Model					
Talk to the Friend	Tobacco	.74	.99	.69	.10
	Drugs	.68	.98	.69	.13
Talk to an Adult	Tobacco	.67	.80	.05	.03
	Drugs	.66	.97	.14	.00
End the Friendship	Tobacco	.71	.04	.01	.02
	Drugs	.69	.06	.02	.00
Ignore Situation	Tobacco	.46	.01	.12	.46
	Drugs	.34	.02	.01	.29

Notes. The probabilities of endorsing a particular response strategy as *Very Likely* or *Likely* are reported. Lowest Modal $G^2 = 1987.56$, LL = -5182.54, 65,456 *df*, AIC = 2145.56, BIC = 2514.75, Random Seeds = 74/100.

Appendix 1-B.

Probabilities of endorsing each strategy in the LTA model with time constrained and groups freely estimated.

Item-Response Probabilities		Latent Status			
		Intervene-End Friendship	Intervene	Intervene Directly	Neither Intervene nor Ignore
Early Adolescent Model					
Talk to the Friend	Tobacco	.88	.96	.83	.30
	Drugs	.89	.92	.90	.12
Talk to an Adult	Tobacco	.86	.99	.00	.11
	Drugs	.85	.91	.29	.08
End the Friendship	Tobacco	.84	.05	.03	.06
	Drugs	.80	.05	.03	.04
Ignore Situation	Tobacco	.25	.03	.10	.30
	Drugs	.24	.02	.05	.19
Middle Adolescent Model					
Talk to the Friend	Tobacco	.80	.95	.84	.11
	Drugs	.72	.98	.76	.22
Talk to an Adult	Tobacco	.70	.82	.07	.03
	Drugs	.66	.97	.18	.03
End the Friendship	Tobacco	.75	.04	.00	.02
	Drugs	.54	.04	.03	.01
Ignore Situation	Tobacco	.37	.00	.04	.47
	Drugs	.24	.01	.00	.29

Notes. The probabilities of endorsing a particular response strategy as *Very Likely* or *Likely* are reported. Lowest Modal $G^2 = 2477.24$, LL = -5120.40, 130,977 *df*, AIC = 2665.24, BIC = 3104.53, Random Seeds = 58/100.

Appendix 1-C.

Probabilities of endorsing each strategy in the LTA model with time and groups freely estimated.

Item-Response Probabilities		Latent Status							
		Intervene-End Friendship		Intervene		Intervene Directly		Neither Intervene nor Ignore	
		T1	T3	T1	T3	T1	T3	T1	T3
Early Adolescent Model									
Talk to the Friend	Tobacco	.89	.79	.94	.98	.87	.68	.39	.12
	Drugs	.89	.80	.91	.97	1.00	.66	.00	.05
Talk to an Adult	Tobacco	.89	.67	.99	.85	.00	.08	.22	.03
	Drugs	.83	.77	.89	1.00	.26	.12	.16	.00
End the Friendship	Tobacco	.84	.71	.06	.05	.06	.02	.05	.02
	Drugs	.80	.76	.02	.06	.03	.03	.04	.00
Ignore Situation	Tobacco	.19	.38	.05	.02	.16	.13	.16	.46
	Drugs	.21	.33	.02	.02	.12	.00	.12	.32
Middle Adolescent Model									
Talk to the Friend	Tobacco	.87	.69	.92	1.00	.87	.75	.10	.11
	Drugs	.83	.51	.97	1.00	.74	.74	.23	.21
Talk to an Adult	Tobacco	.70	.74	.85	.72	.10	.02	.03	.02
	Drugs	.77	.50	1.00	.89	.12	.18	.05	.02
End the Friendship	Tobacco	.81	.75	.02	.00	.00	.01	.02	.02
	Drugs	.50	.57	.02	.06	.04	.02	.02	.00
Ignore Situation	Tobacco	.23	.57	.01	.00	.03	.06	.53	.45
	Drugs	.16	.38	.01	.00	.00	.00	.35	.26

Notes. The probabilities of endorsing a particular response strategy as *Very Likely* or *Likely* are reported. Lowest Modal $G^2 = 2346.28$, LL = -5054.92, 130,913 *df*, AIC = 2662.28, BIC = 3400.67, Random Seeds = 8/100.

Study 2

“It is only my business, until I hurt someone else”: Adolescents’ Reasoning about Marijuana Use

Identity exploration is a developmental hallmark of adolescence. For most young people, part of the identity search involves experimenting with risk and refining their beliefs as to the acceptability of these behaviors (Baumrind & Moselle, 1985; Dworkin, 2005; Jessor & Jessor, 1977; Lau, Quadrel, & Hartman, 1990). The choice to use alcohol, tobacco, or other drugs (ATOD) encompasses a range of personal and social issues, including the health beliefs and values socialized by one’s family, personal desires and rights, peer dynamics, societal laws, as well as consideration of the consequences these actions may have on one’s health, future, and other people. Little is known, however, about the extent to which adolescents weigh and attempt to reconcile these factors when faced with situations involving ATOD use. Moreover, we have only a rudimentary understanding of whether adolescents’ acceptance and justification about ATOD use changes when the risks extend beyond the self and as adolescents get older.

Using a mix of qualitative and quantitative methods, the present research: (a) explores the range of ways that adolescents respond to a hypothetical peer’s marijuana use and justification that her behavior is neither a “big crime” nor “anybody else’s business,” (b) describes if, and how, adolescents’ responses change when it is suggested that the hypothetical peer offers marijuana to her younger sister, and (c) examines the extent to which adolescents’ responses vary with age. National surveys reporting recent declines in adolescents’ perceptions of regular marijuana use as risky (Johnston, O’Malley, Bachman, & Schulenberg, 2009) led to this study’s deliberate focus on how adolescents reason about marijuana use and its consequences to the self and others. Findings from this study contribute depth and richness to our understanding of adolescents’ personal and

social health beliefs by illustrating not only how they reason about a peer's marijuana use but also how they react to the idea of involving a younger sibling. The latter (perceptions of the ethics associated with encouraging a younger sibling's use) should shed some light on how adolescents think about peer pressure.

Adolescents' ATOD Health Beliefs: A Personal Choice

Most adolescents are fully aware of the risks involved in using ATOD. The underlying logic for assessing adolescents' perceptions of ATOD risk is that, theoretically, they should be inversely related to use (e.g., Millstein & Halpern-Felsher, 2002; Nucci, Guerra, & Lee, 1991). Examination of adolescents' marijuana beliefs and behaviors in the National Survey on Drug Use and Health show that adolescents who perceive great risk in smoking marijuana once a month are less likely to use marijuana (1.4%) than their peers who perceived moderate to no risk (9.5%) (Substance Abuse and Mental Health Services, 2009). Yet, other evidence suggests the relationship between perceived risk and use is less straightforward. For example, Killen, Leviton, and Cahill (1991) reported that while 95% of late adolescents in their study acknowledged the negative consequences of ATOD use, only 62% felt this was adequate justification for abstaining. Thus, perceiving a behavior as risky does not always deter adolescents.

The choice by some adolescents to disregard the self-acknowledged risks of ATOD may stem from their sociomoral judgments of the behavior as a personal decision (Berkowitz, Guerra, & Nucci, 1991; Killen et al., 1991; Kuther & Higgins-D'Alessandro, 2000; Nucci et al., 1991). Irrespective of the possibility of self-harm or legal ramifications, some adolescents consider alcohol, tobacco, and marijuana use to be less a matter of right or wrong than one of individual prerogative. Nonetheless, when asked who had the authority to regulate ATOD use, adolescents generally acknowledge the rights of parents (especially when it comes to use in the home) and the government to prohibit use (Flanagan, Stout, & Gallay, 2008; Killen et al., 1991). Adolescents with high rates of ATOD use appear, however, to be an exception. Nucci and colleagues'

comparison of low and high ATOD-using late adolescents suggests that youth fitting into the latter category were more apt to identify themselves as the sole authority over their ATOD use. As expected, adolescents with higher rates of use also held more favorable views of ATOD, perceiving use to be less harmful and less wrong. Adolescents who espouse the belief that ATOD use is a personal choice may extend the same rights to their peers, that is, they likely believe that not only do they have a choice about whether or not to use ATOD, their friends do too.

Consequences of Personal ATOD Use on Others

How adolescents evaluate ATOD is based, in part, on their perceptions of the potential benefits of use to the user (Goldberg, Halpern-Felsher, & Millstein, 2002) and whether any negative consequences to the self and others makes ATOD use wrong (Nucci et al., 1991). Research noted above suggests most adolescents feel it is their personal choice whether to heed or disregard the personal liabilities of ATOD use. In spite of that, their views about individual choice are not unconditional: Adolescents' endorsement of ATOD use as a personal choice and support for the right to engage in risk behaviors begins to break down when they perceive an individual's private ATOD choices as having harmful consequences for others (see Berkowitz, Kahn, Mulry, & Piette, 1995). Killen and colleagues' (1991) interviews with late adolescents revealed support for individuals' rights to harm – and even kill – themselves if they choose to. However, when asked if people had the right to harm themselves if there were negative repercussions for others, adolescents overwhelmingly withdrew their support. Similar results were revealed when young smokers (age 14-22) were asked about smoking cessation (Glantz & Jamieson, 2000). The only statistically significant predictor of planning to stop smoking, or having already done so, was smokers' belief that secondhand smoke harmed non-smokers. Thus, while some adolescents are willing to accept the risks associated with ATOD in favor of use, they appear unwilling to burden others with the consequences of their choice.

Adolescents' concerns about others develop together with their desire for autonomy and personal choice (Killen & Turiel, 1998). Between early and late adolescence, there is an increase in support for an individual's right to engage in health risks (i.e., it's my body and so it's my business) as well as increased appreciation of the public implications of individual risk-taking (Flanagan et al., 2008). Existing research suggests adolescents consider both self-interests and possible negative consequences for others when deciding whether or not to use ATOD – at all, as well as, from situation to situation (Killen et al., 1991). Advances in individuals' social, moral, and cognitive abilities across adolescence likely account for this enhanced ability to consider the interests of one's self and others simultaneously and to think abstractly about complex problems and the consequences of possible solutions (e.g., Eisenberg & Morris, 2004; Hatcher, Hatcher, Berlin, Okla, & Richards, 1990; Keating, 2004; Selman, 2003). Furthermore, studies conducted by Eisenberg and colleagues suggest in adolescence young people's moral reasoning becomes increasingly more sophisticated and other-oriented, as does their ability to articulate what it means to behave responsibly (Eisenberg, Carlo, Murphy, & van Court, 1995; Eisenberg, Cumberland, Guthrie, Murphy, & Shepard, 2005; Eisenberg & Mussen, 1989). These normative sociocognitive changes may partly account for findings showing that adolescents are apt to evaluate an act as a moral transgression than as a personal choice when it involves threats to others' welfare (Killen et al., 1991; Smetana, 1988; Turiel, 1983). Unlike any previous period in their development, the adolescent mind is more self-regulating and other-oriented (Eisenberg & Morris, 2004; Keating, 2004) which should, in part, account for adolescents' sensitivity to avoiding harm to others as a result of personal ATOD behaviors.

ATOD Use in the Context of Sibling Relationships

The social influence literature has traditionally paid more attention to the role of friends than to siblings in predicting adolescent ATOD use. The emphasis on adolescent friends is warranted given the documented sway they hold over one another's behavior (Gardner &

Steinberg, 2005), however the influence of siblings should not be overlooked (Rowe & Gulley, 1992; Windle, 2000). Older siblings' ATOD use has been shown to relate directly (e.g., ATOD provider) and indirectly (e.g., modeling pro-ATOD attitudes) to use by younger siblings (Branje, van Lieshout, van Aken, & Haselager, 2004; Brook, Kessler, & Cohen, 1999; Bullock & Dishion, 2002; Duncan, Duncan, & Hops, 1996). Environmental and genetic models partly account for the similarity in adolescent sibling deviance (Scarr & Grajek, 1982), but not completely. Older siblings influence the ATOD behaviors of younger siblings by: setting standards, reinforcing certain behaviors and discouraging others, and providing advice and information about the (in)appropriateness of various behaviors (Edwards, Hadfield, Lucey, & Mauthner, 2006; Needle et al., 1986). For many adolescents, their older siblings are the most accessible role models in their lives. Revered by younger siblings (Furman & Buhrmester, 1992), older ATOD-using siblings may convey powerful messages to their younger brothers and sisters about the acceptability of ATOD use. Similarly, older siblings who use ATOD to cope with stressful life events often pass these same noxious coping mechanisms onto younger siblings (Windle, 2000). Exposure to older siblings' network of ATOD using peers may also contribute to younger siblings' pro-ATOD attitudes and behavior (Rowe & Gulley, 1992).

While most ATOD use occurs in the presence of friends, adolescents with older ATOD-using siblings also co-use on occasion. An early study of older siblings' (ages 14-18) influence on younger siblings' (ages 11-14) ATOD use by Needle and colleagues (1986), revealed that 5%, 13%, and 3% co-used cigarettes, alcohol, and marijuana, respectively. Second only to friends, older adolescent siblings were also identified as likely sources of cigarettes (13%), alcohol (6%), and marijuana (39%). Interestingly, older siblings and friends were identified almost as frequently as suppliers of marijuana (Needle et al., 1986). Of course, not all influence by older siblings in the area of substance use is negative. Just as research links older siblings' ATOD use to younger siblings' use, so too does it relate older siblings' restraint from ATOD to that of their younger

siblings (Brook, Whiteman, Gordon, & Brenden, 1983). Indeed, older siblings who limit their ATOD use are more likely to have younger siblings who do the same. Despite being an understudied context for exploring adolescent ATOD use, the existing literature clearly demonstrates siblings' influence on one another's ATOD beliefs and behaviors.

Rights and Responsibilities in the Context of Family Relationships

Older siblings are generally expected to care and protect their younger brothers and sisters (Edwards et al., 2006). However it remains unclear how siblings' concern plays out in situations involving ATOD, particularly whether older adolescent siblings feel compelled to protect siblings or if they extend the belief that ATOD use is a personal choice to use by a younger sibling. Previous studies of children's and adolescents' beliefs regarding nurturance (right to be cared for and protected) and self-determination (right to autonomy) suggest that adolescents (ages 14-16) appreciate the need for both more than children (ages 8-12) (Ruck, Abramovitch, & Keating, 1998). Unknown, however, is how adolescents view and resolve these rights in the context of a sibling's ATOD use.

Studies using more innocuous dilemmas than those concerning ATOD use (e.g., going out with friends vs. helping one's father) provide some insight into how adolescents reconcile issues of personal choice and family obligation. For example, Killen and Turiel (1998) examined whether seventh and ninth grade adolescents view it as important and obligatory to provide assistance in situations where help was requested, but providing it required setting aside personal desires. Findings revealed adolescents were willing to relinquish personal desires to help others, particularly family. Adolescents' sense of obligation appeared to originate from their beliefs that helping was both important and the right thing to do. Smetana and colleagues' (2009) investigation of adolescents' and parents' evaluations of the appropriateness of helping versus fulfilling personal desires in family situations similarly demonstrated adolescents' willingness to put their concerns for their parents before their personal needs, particularly when the level of need was high.

Interestingly, the middle adolescents were more likely than their younger peers to cite role responsibilities as justification for parents helping teens. Collectively, these studies demonstrate adolescents' capacity to set aside personal choices and desires in order to fulfill familial commitments. Given the consistency of this finding across a series of rather harmless dilemmas, one would expect adolescents' willingness to help family members, or siblings specifically, to only strengthen when confronted with a situation where harm is possible.

Unfortunately, no research to date has fully explored the dynamic that exists between older and younger siblings surrounding issues of ATOD use. Of particular interest is whether the rights adolescents extend to others to engage in risky behavior apply to younger siblings. In other words, would adolescents say that an older sibling is free to offer marijuana to a younger sibling because the choice about whether or not to smoke ultimately rests with the younger sibling? One would expect adolescents to reason about ATOD use with their peers in this way. Yet, the older-younger sibling relationship may be different. The combination of older siblings' propensity to look after younger siblings and general reluctance to engage in behavior that may harm others suggests that most should be unwilling to support a peer offering a younger sibling marijuana. Those adolescents who would support a younger sibling's marijuana use would be expected to do so out of the belief that all individuals (even those who are younger and family) have the right to decide whether or not to use marijuana and/or to require certain conditions be met to safeguard the health (e.g., moderation) of a younger sibling.

Developmental Differences

Throughout adolescence young people refine their views of ATOD. These changes are undergirded by several normative developmental processes. For example, although generally high, endorsement of self-determination beliefs and an individual's right to make personal choices increase moderately from early to late adolescence (Ruck, Peterson-Badali, & Day, 2002), with a slight leveling off in mid-adolescence (Flanagan et al., 2008; Smetana et al., 2009). Adolescents'

defense of ATOD use as an individual prerogative may be partly associated with age-graded increases in autonomy from parents (Zimmer-Gembeck & Collins, 2003), the onset of ATOD use (Kosterman, Hawkins, Guo, Catalano, & Abbott, 2000), and decreases in the perception of ATOD risks (Johnston et al., 2009). Because older adolescents are more likely than younger adolescents to have used ATOD they, in turn, should be less likely to perceive use as dangerous and more likely to perceive the benefits (Goldberg et al., 2002). However, this inclination may be qualified by their more sophisticated understanding of the social conventions surrounding ATOD use (Nucci, 2006) and capacity to simultaneously weigh the consequences of behaviors in terms of the self and others (Eisenberg & Morris, 2004). Furthermore, studies show that early and late adolescents are more likely than middle adolescents to acknowledge the right of government to enact laws to constrain the rights of individuals to use substances that jeopardizes the interests of the public (Flanagan et al., 2008). Considered together, one would expect older adolescents to have developed a respect for individuals' rights to use ATOD as well as a more sophisticated appreciation for the consequences of their behaviors on others. Consequently, as adolescents grow older they should be more likely to endorse a peer's right to use marijuana but less inclined to support this behavior if they believe others (e.g., a younger sibling) may be hurt.

Present Study

This study takes an open-ended approach to understanding how adolescents think about marijuana use. First, adolescents were asked whether or not they agree with a hypothetical peer's decision to use marijuana and to justify their position. In a follow-up question, adolescents were presented with the suggestion that this hypothetical peer offers marijuana to her younger sister. Thereby introducing two twists: the peer's marijuana use now has the explicit potential to harm others, and the peer's marijuana use is now couched in the context of the sibling relationship and the responsibilities it entails. Comparing adolescents' responses across the two parts of the

vignette creates an opportunity to explore how adolescents' viewpoints and justifications change when a younger sibling becomes implicated in a peer's marijuana use.

Method

Data come from the Social Responsibility and Prevention Project in which adolescents, their parental guardians, and their teachers completed annual questionnaires. The goal of the broader project was to understand the factors that motivate young people to act as allies in prevention (Flanagan, Elek-Fisk, & Galla, 2004). As part of this study, adolescents were asked closed- and open-ended questions related to substance use, beliefs about the public and private consequences of risk behaviors, and the likelihood of intervening in the ATOD behaviors of friends. Analyses focus on survey data collected from adolescents during the first wave of the study (spring 2002). Consent was required from adolescents and their parents to participate.

Participants

Adolescents were recruited from classes in six rural, urban, and semi-urban school districts, five from a mid-Atlantic state and one from a Midwestern state. A total of 2,558 adolescents in fifth through twelfth grade provided data. To make the coding of open-ended data more manageable, the present analyses focus only on those adolescents in sixth, eighth, tenth, and twelfth grades. These grades were selected based on research showing that initiation of marijuana use does not typically occur until, or after, eighth grade (Kosterman et al., 2000) and increases steadily thereafter (Johnston et al., 2009). Selection of these grades also allowed developmental differences across the full period of adolescence to be examined. Adolescents who did not answer any part of the open-ended question ($n = 237$) were excluded from analyses. The total sample consists of 1,127 adolescents.

Age differences were investigated by comparing adolescents in grades six ($n = 233$; $M_{\text{age}} = 11.7$; 55% Female), eight ($n = 378$; $M_{\text{age}} = 13.7$; 52% Female), ten ($n = 336$; $M_{\text{age}} = 15.8$; 60% Female), and twelve ($n = 180$; $M_{\text{age}} = 17.9$; 61% Female). The demographic backgrounds of the

sample were: 75% European-, 12% African-, 4% Latino-, 3% Native-, and 1% Asian-American; an additional 5% self-identified as other ethnicities. Reporting on their parents' highest level of education, participants indicated whether their parents had graduated from high school (Mothers: 32%; Fathers: 31%), received some college education (Mothers: 41%; Fathers: 36%), or earned a college degree (Mothers: 23%; Fathers: 29%).

Design of Open-Ended Questions

Adolescents were presented with the following hypothetical vignette: "Susan smokes marijuana. She only smokes at home while listening to music or visiting with a few friends. She doesn't think this is a big crime and she doesn't believe that it is anybody else's business." The vignette was followed by four open-ended questions: (a) "Do you agree with Susan?" ($n = 1118$), (b) "Why or why not?" ($n = 1083$), (c) "What if Susan lets her younger sister join in?" ($n = 1075$), and (d) "Why?" ($n = 1023$).

Use of an open-ended set of survey questions administered and submitted via computer (by most participants) allowed adolescents to freely describe their views on marijuana use by a peer and on a peer offering marijuana to a younger sibling. Researchers commonly use vignettes, or hypothetical scenarios, to elicit information on adolescents' awareness, attitudes, and likely responses (e.g., Flanagan et al., 2004; Smetana et al., 2009). The depersonalization that comes with this approach allows participants to think beyond their own circumstances (Schoenberg & Ravdal, 2000) such that, in the case of the present study, regardless of whether an adolescent uses marijuana him or herself or has a younger sibling they can answer the question. Furthermore, minimizing the role of the researcher in the survey administration process by implementing the survey online, provided adolescents with an opportunity to express their thoughts free (to the greatest extent possible) of the social desirability bias common in other methods like one-on-one interviews. The computer-based survey was formatted in a way that prevented adolescents from reading ahead and, as a consequence, if they felt inclined, tempering their responses. The raw and

guileless nature of some adolescents' responses suggests these strategies may have helped to create an environment where adolescents felt comfortable providing candid responses.

Analysis Plan

NVivo 8.0 was used to conduct a textual analysis on adolescents' written open-ended responses to the four follow-up questions. All text was examined to identify themes in adolescents' reasoning about a peer's choice to smoke marijuana and the suggestion that the peer would offer marijuana to her younger sister. A five-stage analysis process was used. First, adolescents' responses to the first (i.e., Do you agree with Susan?) and third (i.e., What if Susan lets her younger sister join in?) follow-up questions were sorted, by the author, into three mutually-exclusive categories: Agree, Unsure, and Disagree. The straightforward nature of these two questions led the majority of adolescents to clearly state their agreement (e.g., "Yes," "Agree") or disagreement (e.g., "Definitely not!", "No way") with Susan's decision to smoke marijuana; responses with an uncertain valence (e.g., "Maybe") or conveying both agreement and disagreement (e.g., "No/Yes") were coded as Unsure. A second independent researcher confirmed that responses were fit into the appropriate categories. Next, the researchers made a complete pass through participants' responses to the second (i.e., Why or why not?) and fourth (i.e., Why?) follow-up questions. These responses provided elaboration to support participants' agreement or disagreement. Emerging themes were noted and a general coding scheme was derived. This stage of analysis was an interpretive process. Although the original coding scheme was driven by the themes that emerged from responses, there is some similarity with codes used previously in social-cognitive domain theory research (e.g., Ruck et al., 2002; Smetana, 1988). Responses were coded to reflect all relevant themes; thus, they are not mutually-exclusive. Third, the two researchers coded a random subsample of responses ($n = 115$; 10% of sample) separately to check inter-rater reliability. Cohen's kappa for the second follow-up question was .89 and .94 for the last question. Fourth, each of the researchers independently coded half of the responses. Inter-rater reliability

checks were conducted regularly to prevent coder drift. Any unclear responses were coded through collective agreement. Last, cross-tabulation analysis was used to examine the extent to which participants' (dis)agreement with a peer's marijuana use stay the same or change when a sibling is implicated in the dilemma. Cross-tabulation analysis was also used to test for differences in (dis)agreement based on adolescents' age (using grade as a proxy).

Results

Research Question 1: How do adolescents respond to a hypothetical peer's marijuana use and justification that her behavior is neither a "big crime" nor "anybody else's business"?

As illustrated in Table 2-1, about two-thirds of adolescents disagreed (69.1%) with Susan's marijuana use, while fewer agreed (27.1%) or expressed uncertainty (3.8%). Adolescents supported their position by citing a range of justifications which fit into three types of reasoning: supportive, conditional, and unsupportive. Descriptions and examples of the reasoning codes are provided in Table 2-2. Table 2-3 summarizes response frequencies by agreement.

The most frequent (36.9%) concern voiced by adolescents who objected to Susan's marijuana use focused on the risks marijuana poses to the health and long-term goals of users. For example, adolescents feared that as a result of her marijuana use Susan may have a "heart attack," get "very sick," "mess with her brain," "transform her life to a not so good future," or "die." The last of which was most prevalent. Twenty-five percent of adolescents referenced authority (e.g., laws, family rules) as justification for opposing Susan's marijuana use. Commentary ranged from discussion of marijuana as "illegal" and use as "breaking the law" to concerns that "her parents will find out eventually cuz they'll smell it." Adolescents who defended Susan's marijuana use or expressed some indecision stated that this position was rooted, primarily, in their belief that ATOD use is a personal decision (43.4% and 33.1%, respectively). The overall sentiment of this code reflected the belief that "Susan is her own person" and that the choice to use marijuana is "up to her," "her right," "her biznus," and that since she is "not out killing babies" other people should

just “mind their own business.” Adolescents supportive of Susan’s marijuana use were the most likely to qualify their support by stating that certain safety precautions should be followed. These safety precautions included limiting harm to others (e.g., “if she...doesn’t bother anyone else with it”), moderating use (e.g., “as long as she doesn’t get carried away with it”), and only smoking marijuana in private (e.g., “as long as she’s not able to be caught & does not leave her room”).

Research Question 2: How do adolescents respond to the suggestion that a peer offers marijuana to her younger sister?

Adolescents overwhelmingly rejected the suggestion that a peer allow a younger sibling to join in using marijuana (89.3%; Table 2-1). The idea of involving others, particularly a sibling, elicited strong responses from many adolescents who felt this type of behavior was unacceptable. For example, one adolescent stated, “if she wants to ruin her own life, fine. But what kind of sister lets her little sister do drugs? that's the biggest bunch of bull I've ever heard!” While another, who shared this sentiment, wrote: “Why does Susan have to let people join her in being STUPID!?” Adolescents opposed to co-use, by and large, as shown in Table 2-3, deemed such behavior socially and morally unacceptable (27.7%) and dangerous for the sibling (22.7%). Concerns about the ability of a younger sibling to handle the effects of marijuana (e.g., “her lungs could be too small”), make informed decisions (e.g., “at a young age kids will do anything without knowing what could happen”), and circumvent the influence of an older sibling (e.g., “she probably feels she needs to join in to be cool to her older sister”) were also common among those who disagreed (17.2%) or were unsure (37.1%). Commentary provided by several adolescents suggested concern that the young age of the sister would amplify the harm. Responses reflective of this concern include: “younger kids get hooked on it faster,” “even more harmful to her still developing little sister,” and “her sister could have a worse chance of dying.” Noting the context of the vignette, some adolescents (13%) called on the obligation of older siblings to care, protect, and serve as positive role models for younger siblings as justification for their disagreement with Susan

offering marijuana to her sister. As one adolescent uniquely put it, “Her sister might get hooked on it too then it would be her fault and sisters don’t let that happen to sisters.”

Very few adolescents (5.2%) approved of a peer allowing a younger sibling to co-use marijuana (see Table 2-1). Those who did, as shown in Table 2-3, usually stipulated safe use conditions (38%). In this part of the vignette, the safe use conditions took on a new direction focusing less on location and moderation and more on ensuring that the younger sister made the choice free of pressure from Susan (e.g., “don’t make the choice 4 your little sister or persuade her”) and the possible protective role Susan could play by being present while her sister tried marijuana (e.g., “If her sister wants to experiment, Susan is letting her experiment safely;” “She is going to see it and try it sooner or later so let her try it with her sister would be safer for her than going out and trying it on her own”). About one-third of the adolescents who supported Susan offering marijuana to her younger sister invoked the argument that ATOD use is a personal choice reserved for the younger sister to make (35.9%). Only 1 of the 22 adolescents who fit into this response pattern qualified their response by indicating that while it may be the younger sister’s personal choice, certain safety conditions or other reasoning should be considered. The words of one adolescent capture this sentiment best: “Let her sister do what she wants, people should learn....they shouldn’t give a shit.”

Research Question 3: How do adolescents’ responses change when it is suggested that a peer offers marijuana to her younger sister?

Comparing how adolescents respond to a peer’s marijuana use (presented first) with their reaction to a sibling offering marijuana to a younger sibling (presented as a follow-up) allows me to discern whether adolescents’ agreement changes when the risks extend beyond the self. As shown in Table 2-1, significant differences in agreement emerged between a peer’s use and a peer involving a younger sister, $\chi^2(4, N=1067) = 183.99, p < .001, \Phi_C = .415$. The majority of adolescents were unsupportive of marijuana use in general (69.1% and 89.3%, respectively),

although significantly more agreed with the idea of a peer using on her own (27.1%) than a peer offering marijuana to a sibling (5.2%). Only 15.6% of adolescents who supported a peer's marijuana use extended their support to use by a sister; with most adolescents (68.8%) withdrawing their support when the sister was implicated. Prototypical responses from adolescents fitting into the latter category are illustrated by these examples:

Example 1:

Do you agree with Susan? "i wouldn't do the shit but if she wants to then no one can stop her"

Why or why not? "When you want to do drugs no one will ever stop u"

What if Susan lets her younger sister join in? "Now that's wrong"

Why? "cause that's her little sister"

Example 2:

Do you agree with Susan? "yes"

Why or why not? "there is nothing wrong with it"

What if Susan lets her younger sister join in? "that is wrong"

Why? "If her sister starts it shouldn't be from Susan's influence"

Example 3:

Do you agree with Susan? "Yes"

Why or why not? "She is not hurting anybody, and marijuana is like 10 thousand times less dangerous than cigarettes."

What if Susan lets her younger sister join in? "nooooooooooooooooooooo way jose"

Why? "she needs to look out for her younger sister"

Adolescents initially unsure about supporting a peer's marijuana use overwhelmingly (92.5%) disagreed with involving the sister. Likewise, all but a few of the adolescents opposed to a peer using marijuana also opposed her offering marijuana to her younger sister.

Adolescents drew on different types of reasoning to support their positions on a peer's marijuana use and a peer offering marijuana to a younger sibling (see Table 2-3). When confronted with a peer's marijuana use, a small portion of all adolescents (3.6%) made comments about the harmless nature of marijuana use. However, this type of reasoning was noticeably absent (.1%) once the sister was introduced into the vignette. Justifications based on marijuana use as a personal

choice also decreased, from 16.8% to 4.4% of responses, after the sister became involved. The idea of Susan using marijuana elicited a small but sizeable percentage of responses identifying her behavior as unacceptable, bad, or wrong (14.5%). The prevalence of this sentiment increased significantly when it was suggested that Susan share her marijuana with her younger sister (27.5%). The bulk of these responses espoused the belief that it is wrong to involve other people – especially a sibling – in one’s personal marijuana use. As a result of the changing focus of the vignette, concerns for the risks of marijuana use on Susan decreased (29.1% to 7%) while concerns for the risks of marijuana use on others, including the sister, increased (4.1% to 22%). The introduction of a younger sibling also led to the emergence of the developmental immaturity and sibling obligation codes.

Research Question 4: How do adolescents’ acceptance and justification about marijuana use differ with age?

Cross-tabulation analyses were run to assess age (grade) differences in adolescents’ agreement with the “Susan” and “Sister” parts of the vignette. These revealed significant age differences in agreeing with a hypothetical peer’s use of marijuana [$\chi^2(6, N = 1118) = 62.60, p < .001, \Phi_C = .237$] and with that peer involving a younger sister [$\chi^2(6, N = 1075) = 19.81, p < .01, \Phi_C = .136$]. Table 2-4 provides a summary of these differences. Older adolescents were more likely than younger adolescents to endorse a peer’s marijuana use; differences in reasoning followed suit. Grade comparisons revealed that with each two year grade increase adolescents were more likely to consider marijuana use: acceptable, harmless, and a personal choice. Qualifying support for a peer’s marijuana use by insisting certain safety conditions be followed was also more common among older adolescents. Endorsement of marijuana as acceptable (+5.4%), harmless (+7.5%), and support conditioned on safety precautions (+5.9%) all increased markedly between tenth and twelfth grade; while personal choice reasoning spiked between sixth and eighth grade (+12.1%).

While all types of supportive and conditional reasoning were more common among older than younger adolescents, the reverse was true of most forms of unsupportive reasoning. For example, 40% of sixth graders' responses focused on risks to self. This proportion decreased in eighth grade (28.7%), tenth grade (24.7%), and twelfth grade (14.5%). Similar patterns were revealed in identification of marijuana use as unacceptable, concern for risks to others, appeals to authority, and comment on the public consequences of marijuana use.

Regardless of age, adolescents offered little support for a peer letting a younger sibling use marijuana. However, older adolescents were more likely than younger adolescents to express uncertainty and less likely to disagree. Use of supportive and conditional reasoning was similar across grades, with older adolescents being somewhat more likely to reason that the sister's use was a personal choice and to condition their response on safety conditions. Fairly equal proportions of adolescents in each grade commented that offering marijuana to a sibling was unacceptable; however younger adolescents were more likely to identify risks both to Susan *and* to her sister (e.g., "she's shortening both their lives," "Susan is not only hurting herself but her sister too"). Concerns about the developmental immaturity of a younger sibling and the protective responsibilities of being an older sibling were more common with age.

Discussion

When asked to evaluate the acceptability of marijuana use, adolescents proffered up a host of candid and thoughtful considerations regarding personal, social, health, and legal factors. Within the adolescent development literature, marijuana use is most frequently discussed in the context of preventing and halting use. But, too often, we jump to prevention without first pausing and exploring – from the perspective of adolescents – the reasons undergirding their approval or disapproval of such behavior and how this differs when the situation extends beyond the self and with age. The small literature that exists on adolescents' perceptions and reasoning regarding ATOD use has focused mostly on their moral evaluations and social-cognitive domain judgments,

with particular emphasis on distinguishing between moral vs. conventional vs. personal forms of reasoning (e.g., Abide, Richards, & Ramsay, 2001; Killen et al., 1991; Kuther & D'Alessandro, 2000; Nucci et al., 1991). The survey inventories, coding schemes, and card-sorting methodologies employed in these studies have typically been construed in ways that allow for the explication of particular theoretical aspects of Kohlberg's (1984) theory of moral development (Kohlberg, 1984) or Turiel's (1983) model of social development. Untethered from these theories, the open-ended, interpretive approach of this study allowed for a fuller exploration of both the broader forms of reasoning used by adolescents as well as some of the finer nuances. While some of the emergent themes aligned with those commonly found in social-cognitive domain research (e.g., personal choice, jurisdiction of authority), many were unique to this study.

Reasoning against Marijuana Use: "Oh heck no!"

These data paint a picture of adolescence where most young people stand opposed to a peer smoking marijuana. While some reasoned marijuana use was a personal choice and was acceptable if done safely, the majority of adolescents expressed concern about the health and legal consequences. Consistent with previous research and contrary to popular perception, adolescents are not irrational beings who believe themselves to be invulnerable to the harm associated with marijuana use (Johnston et al., 2009; Millstein & Halpern-Felsher, 2002; Steinberg, 2007). In fact, the logical-reasoning skills of 15 year-olds have been shown to approximate those of adults (Reyna & Farley, 2006); thus suggesting that adolescents are equally capable of perceiving and estimating their vulnerability to the risks associated with marijuana use.

Use of reasoning steeped in concerns of risk has been shown to decrease steadily across adolescence. For example, statistics on U.S. adolescents' perceptions of marijuana use from 2002 (the year this data was collected, but very similar to more recent estimations) show that 46% of eighth, 32% of tenth, and 23% of twelfth graders believe it poses "great risk" physically or in other ways to smoke occasionally (Johnston et al., 2009). These qualitative analyses tapped into a very

similar age trend, showing that perceptions of risk (to self and to others) decreased and perceptions of marijuana as harmless increased across adolescence. This fall off in perceived risk may reflect a decrease in adolescents' overestimation of risk (Reyna & Farley, 2006). Unlike early adolescents who tend to exaggerate risks (e.g., "Marijuana kills thousands all over the world each month"), older adolescents are more likely to have explored these behaviors and may, as a result, be adjusting their perceptions based on their positive experiences and failure to encounter any negative experiences (Goldberg et al., 2002; Halpern-Felsher et al., 2001).

Marijuana Use as a Personal Choice: "She has the right to do whatever she wants"

Older adolescents' perceptions of marijuana use as less harmful may serve to support their endorsement of use as a personal choice. This follows from research showing that substances with lower perceived risks are more likely to be considered decisions of personal discretion (see Killen et al., 1991). Adolescents' qualitative commentary rooted in beliefs about marijuana use being a personal prerogative increased markedly between sixth and eighth grades; a finding that corroborates quantitative findings documented in this data set (e.g., Flanagan et al., 2008) and elsewhere in the literatures on personal rights and prudence (e.g., Berkowitz et al., 1991; Killen et al., 1991; Nucci et al., 1991). The spike in personal choice reasoning between early and middle adolescence likely reflects an outward manifestation of young people's growing commitment to self-determination (i.e., autonomy) rights for themselves and others (as reflected in second part of the vignette) normative of this age period (see Ruck et al., 1998).

Risks to Others: "If you do that kind of stuff you don't let others get involved"

The shift that took place when it was implied that a peer's marijuana use might affect others echoed the sentiment of an early quote by Oliver Wendell Holmes, Jr.: "The right to swing my fist ends where the other man's nose begins." In other words, while individuals have rights to engage in all manner of behavior, harming others is not one of them.

With few exceptions, adolescents rejected the idea of implicating other people – particularly a sibling – in one’s personal marijuana use decisions. Empirically, differential reasoning based on who a behavior affects also emerged in Killen and colleagues’ (1991) work in which most adolescents, regardless of whether they believed use of illegal drugs to be right, felt individuals did not have the right to harm themselves if there would be negative consequences to others. Harming others is often perceived by adolescents to be more of a moral issue of right or wrong than harming one’s self (see Berkowitz et al., 1995). Relatedly, it is interesting to note that concern for others was rarely mentioned when adolescents were confronted with a peer’s marijuana use. This may be a reflection of the vignette which already insinuated that Susan was taking steps to minimize harm to others by limiting her marijuana use to the privacy of her home.

Adolescents’ assessments of the risks to others (including the younger sister) involved in smoking marijuana followed a similar age pattern to their assessments of risks to self: a decline with age. If drawing solely from the sociocognitive literature, this contrasts what one might expect. The increased capacity for other-oriented thinking that unfolds during adolescence should make older adolescents less inclined than their younger peers to support behaviors that put others at risk. Yet, that is not reflected in their concern for the risks marijuana poses to others. As illustrated by the complexity of adolescents’ responses and the various developmental patterns that emerged, it appears that adolescents’ concern for others may be tempered or redirected by competing concerns (e.g., right to personal choice), experience-provoked reassessments of marijuana as less harmful, and the ability to generate ideas to minimize harm (i.e., safe use conditions). While less concerned about the *risks* marijuana poses, older adolescents’ concern for others may be manifested – as surmised below – in other ways such as in the depth of their reasoning and in the complexity of the safeguards they recommend be put into place.

Age Differences

As an illustration of the above point, across the period of early to late adolescence young people in this study appeared to use more advanced reasoning and think more deeply about the suggestion of involving a younger sibling. In this way, adolescents increasingly sophisticated ability for understanding responsibilities and for other-oriented thinking (e.g., Eisenberg & Morris, 2004), were reflected in the age trends in reasoning used by adolescents both in support of and opposed to a peer offering marijuana to a sibling.

Disagreement with a peer inviting a younger sibling to co-use marijuana dropped between sixth and twelfth grade. Often this decreased disagreement (which, as noted by the stable rate of agreement, is not the same as increased agreement) was rooted in older adolescents' justification that everyone – even younger siblings – has a personal right to decide whether or not to smoke marijuana. Thus, with age, it appears that some adolescents may come to recognize younger siblings as having their own rights to engage in risky behavior. Older adolescents were, however, more likely than younger adolescents to stipulate that safety conditions be instituted; a trend which may reflect the increased ability of some older adolescents to foresee and troubleshoot problems that might arise if a younger sibling smoked marijuana.

Older adolescents' advanced reasoning was similarly illustrated in the commentary provided by those who disagreed with offering marijuana to a younger sibling. With age, adolescents were increasingly concerned that it was an older sibling, someone who was "supposed to be setting a positive example for her younger sister," offering the marijuana. Older adolescents appeared to be progressively more mindful of the responsibilities older siblings have to protect, care, and be positive role models for younger brothers and sisters. This finding parallels Smetana and colleagues' (2009) work showing that middle adolescents were more inclined than early adolescents to cite role responsibilities as justification for helping family members. Thus, while older adolescents did not identify more concern about the harm marijuana use posed for others, they were more aware of the responsibilities individuals (particularly older siblings) have to look

out for others. Similarly, it was older adolescents who were more inclined to disagree with offering marijuana to a younger sibling on the grounds of her developmental immaturity. In these statements, older adolescents tended to note concerns about the sibling's age, ability to make an informed decision, handle side effects, and circumvent any pressure intentionally applied (or unintentionally implied) by a marijuana offer from an older sibling. This line of reasoning suggests that as adolescents move from sixth to twelfth grade they become increasingly aware of age appropriateness and demonstrate more concern for people who are younger.

Implications

The adolescents in this study by and large took issue with a peer offering marijuana to a younger sibling. Whether this was because she was younger, a sibling, or just someone else remains to be teased apart, but does allude to adolescents' general concern for others and reluctance to expose others to the risks of their personal marijuana choices (see also Killen et al., 1991). The fact that adolescents think differently about risks of self and risks to others is a phenomenon rarely capitalized on in prevention programs. Focusing primarily on the personal implications, as is common in most current programs, bolsters the argument that marijuana use is a personal choice. Discussion of the personal hazards of marijuana use should be integrated with programming focused on the implications of marijuana use on others (in the immediate and the abstract). Furthermore, while not a strategy for curbing personal use, it may be particularly fruitful for prevention programs to talk to older adolescents about their obligations as siblings (when applicable) to set a positive example for younger brothers and sisters. Playing on adolescents' perceptions of involving others as inappropriate may also be a way to reframe and curb adolescent peer pressure.

Limitations and Future Research

When interpreting these results, a few points should be considered. First, while this open-ended survey data provided a wide breadth of responses, it limited my ability to interact with

participants and clarify responses. Employing an interview approach in future research would allow researchers to probe for deeper meaning in addition to creating an opportunity for researchers to flesh out how much of adolescents' responses were tied to the substance, the age of the sibling, and the relationship between the peer and the recipient of the marijuana offer. Careful attention will, however, need to be paid to creating a safe and comfortable climate for participants.

Second, the age of the peer and her younger sister is not stipulated in the vignette. The general tenor of adolescents' responses suggested that most thought of the peer as being about their age; much like the protagonists in the vignettes presented immediately before and after this set of open-ended questions in the survey. However, it is plausible that adolescents imagined Susan to be 30 and her sister to be 25. Although marijuana is a controlled substance irrespective of age in the United States, for some adolescents, their acceptance of involving a younger sibling hinged entirely on her youthfulness. This was suggested by responses like "it depends how old she is" and "it depends how much younger." In an interesting revelation, a few adolescents put forth their own age (e.g., "If over 12, it is o.k.," "if she really wants to and is at least 14 she can," "two years or less ok anything younger then that is a different story," "If she's her twin sister and just happens to be younger...no harm done") and maturity (e.g., "Its about maturity, not age. I know 10 year olds that could handle pot. I know 25 year olds that cant") parameters.

Third, and related to the point above, the part of the vignette involving the younger sister confounds concerns related to marijuana being offered to a younger person and those related to marijuana being offered to a family member. Adolescents may react to these two points very differently. An interesting extension of this research would be to explore whether adolescents use (dis)similar types of reasoning when marijuana is offered to a peer compared to a sibling cast as being within the normative range of ATOD experimentation. Moreover, it is unclear what effect characterizing the peer and her younger sibling as females had in shaping adolescents' responses.

Fourth, future research should explore whether adolescents' responses to a peer using marijuana and offering it to a younger sibling differ for males and females and whether they themselves smoke marijuana. Empirical studies examining adolescents' endorsement of ATOD use as a personal choice (e.g., Killen et al., 1991) suggest little variation exists between males and females. Yet, comparisons of the relationships adolescents form with others consistently show that females tend to express more intimacy, responsibility, care giving, and greater willingness to intervene in the ATOD behaviors of friends than do their male peers (Edwards et al., 2006; Flanagan et al., 2004; Rose & Rudolph, 2006). Based on this literature, no gender differences would be expected in adolescents' support for, or reasoning about, a peer's personal use of marijuana. However, grounded in the perspective of females (and older sisters, in particular) as caregivers, females should be less likely than males to support a peer's decision to offer a younger sibling marijuana. Marijuana users should also be more supportive than non-users of a peer smoking marijuana and offering it to her younger sister.

This study contributes importantly to our understanding of adolescents' health beliefs. The two-part open-ended design allowed both for a rich explication of adolescents' perceptions of marijuana use as well as for the capture of qualitative developmental differences – an approach rarely found in the developmental or prevention literatures. Etched in the words of these adolescents is a picture of how young people reason about issues of marijuana use. The candor of their arguments reveals a youthful commitment to personal choice, concern for the well-being of others, and an understanding of their responsibility for others.

Table 2-1.

Description and cross-tabulation analysis of adolescents' agreement.

	Agreement					
	Agree		Unsure		Disagree	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Peer Using Marijuana	303	27.1	42	3.8	773	69.1
Peer Involving Sister	56	5.2	59	5.5	960	89.3
	Peer Involving Sister					
Peer Using Marijuana						
Agree	46	15.6	46	15.6	203	68.8
Unsure	2	5	1	2.5	37	92.5
Disagree	8	1.1	10	1.4	714	97.5

Notes. $\chi^2(4, N = 1067) = 183.99, p < .001, \Phi_C = .415$. Missing ($n = 60$) responses were excluded from the cross-tabulation analysis.

Table 2-2.

Description and examples of coding themes.

Category	Description and Examples
<i>Supportive Reasoning</i>	
Acceptable Behavior	References of approval for marijuana use
Legalization of marijuana use	E.g., “it seems fine to me;” “on your own property, it is not illegal;” “it should be legalized then kids won’t have to sneak”
Harmless Behavior	References to marijuana use as safe
Safer than other ATOD	E.g., “pot is not bad at all, it is a herb;” “weed is good for your soul;” “weed is not addicting;” “Marijuana is a drug that unlike alcohol or other drugs, does not kill;” “she’s not hurting anyone but herself”
Poses no harm to others	
Personal Choice	Appeal to individual choice, preferences, or prerogatives
Her (Their) bodies/business	E.g., “It is her body, she can do what she wants with it;” “Susan is her own person;” “it’s her business;” “whatever floats her boat;” “people should mind their own business;” “it’s her sister’s choice”
Not my business	
<i>Conditional Reasoning</i>	
Safety Conditions	References to safety precautions or conditions
Limits harm to others	E.g., “As long as she is not harming anyone else;” “as long as you don’t do it publicly;” “as long as it’s a once-in-awhile thing;” “only if her sister isn’t being pressured to do it;” “better for your younger siblings to experience such things with someone more mature on the scene, rather than with her peers”
Location	
Moderation	
Not pressured to use ^a	
Monitored by older sister ^a	
<i>Unsupportive Reasoning</i>	
Unacceptable Behavior	References to marijuana use as socially and/or morally unacceptable
Wrong to use marijuana	E.g., “That is wrong!;” “She is stupid;” “because anyway you do it, it’s still marijuana;” “smoking weed is bad;” “Her sister might tell on her;” “BAD BAD BAD!!!;” “Susan is wrong for letting anyone join in”
Dislike for marijuana/users	
Pragmatic concerns	
Wrong to involve others/sister ^a	

Table 2-2 continued.

Description and examples of coding themes.

Category	Description and Examples
Risk to Self	References to the negative consequences to Susan E.g., “marijuana kills brain cells;” “marijuana is a gateway drug”
Risk to Others	References to the negative consequences to others (including the sister) E.g., “she’s hurting herself as well as people around her;” “she’s hurting her sister”
Appeal to Authority Rules or laws Parental consequences	References to authority figures or to the existence of laws E.g., “it is illegal;” “she can get in trouble and have to go to jail;” “then Susan is gonna get a butt whoppin’ by her mom and dad”
Public Concern	Appeal to the public concern and consequences of using marijuana E.g., “I think it is my business if I am her friend;” “Whenever a person is killing themselves, it’s everyone’s business;” “It’s her parents’ business because she’s their child and they brought her into the world”
Developmental Immaturity ^a Incapable of making informed decision Intolerance for side effects Unable to circumvent sister’s influence Too young to use Age parameters	References to younger sister’s inability to handle the effects of marijuana, to navigate the situation, or age-appropriateness E.g., “She’s too young to know better;” “she will make her sister sick or die quicker because she is smaller;” “Young kids are too easily influenced;” “Cause she is a little kid;” “depends on her age”
Sibling Obligation ^a Care/protection Poor role model/bad influence Responsibility to be a role model	Appeal to the expectations of care, protection, and modeling customary in sibling relationships E.g., “That is major irresponsibility!!;” “the responsibility of an older sibling is to look out for a younger sibling even if it means being a hypocrite;” she’s suppose to be a good influence”

Notes. Reasoning categories are listed in bold typeface, with prominent subthemes identified below. ^a Indicates codes reserved for the sibling portion of the question.

Table 2-3.

Adolescent reasoning by agreement.

	Susan							Sister						
	Agree		Unsure		Disagree		Total	Agree		Unsure		Disagree		Total
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	%
Supportive Reasoning														
Acceptable Behavior	22	8.1	3	4.2	1	.2	1.9	3	5.0	1	2.2	2	.1	.4
Harmless Behavior	44	14.0	3	3.5	1	.3	3.6	1	0	0	0	0	0	.1
Personal Choice	177	43.4	26	33.1	23	3.9	16.8	22	35.9	19	17.5	20	2.7	4.4
Conditional Reasoning														
Safety Conditions	61	19.0	6	8.1	2	.4	5.1	15	38.0	6	14.6	10	1.0	2.3
Unsupportive Reasoning														
Unacceptable Behavior	10	3.2	7	9.1	178	17.0	14.5	1	1.6	5	7.1	373	27.7	27.5
Risks to Self	27	6.5	15	18.6	350	36.9	29.1	0	0	1	.6	95	6.9	7.0
Risks to Others	0	0	2	5.1	53	7.9	4.1	3	9.6	4	7.6	296	22.7	22.0
Appeal to Authority	14	5.1	11	12.4	249	24.8	20.4	0	0	4	8.5	115	7.6	8.6
Public Concern	2	.8	3	6.0	55	8.6	4.5	0	0	0	0	9	1.0	.7
Developmental Immaturity ^a	--	--	--	--	--	--	--	5	9.8	24	37.1	196	17.2	16.3
Sibling Obligation ^a	--	--	--	--	--	--	--	0	0	1	4.8	146	13.0	10.7

Notes. ^a Indicates codes reserved for the sibling portion of the question. Other (Susan *n* = 81; Sister *n* = 59) and missing (Susan *n* = 44; Sister *n* = 104) responses were excluded from the percentage calculations.

Table 2-4.

Adolescent agreement and reasoning by grade.

Category	Susan				Sister			
	6 th Grade	8 th Grade	10 th Grade	12 th Grade	6 th Grade	8 th Grade	10 th Grade	12 th Grade
Agreement								
Agree	10.9	24.5	33.2	42.1	4.2	5	6.1	5.1
Unsure	2.6	4.0	3.9	4.5	2.8	2.8	7.7	10.2
Disagree	86.5	71.5	62.9	53.4	92.9	92.2	86.2	84.7
Supportive Reasoning								
Acceptable Behavior	0	1.1	2.8	8.2	.2	.4	.4	.7
Harmless Behavior	.2	3.4	4.1	11.6	0	.1	0	0
Personal Choice	8.2	20.3	18.4	21.0	1.6	5.3	4.2	6.5
Conditional Reasoning								
Safety Conditions	.4	6.2	6.4	12.3	.3	1.9	4.7	3.7
Unsupportive Reasoning								
Unacceptable Behavior	13.4	10.0	14.7	10.5	23.1	22.1	29.4	27.3
Risks to Self	40.0	28.7	24.7	14.5	11.7	6.7	5.8	2.0
Risks to Others	7.9	5.5	5.7	2.2	33.0	25.5	17.0	11.9
Appeal to Authority	19.0	19.7	16.8	16.7	7.7	9.4	5.7	7.1
Public Concern	11.1	5.1	6.3	3.1	1.2	.9	1.2	.4
Developmental Immaturity ^a	--	--	--	--	16.8	15.9	16.1	25.6
Sibling Obligation ^a	--	--	--	--	4.2	11.8	15.5	14.9

Notes. ^a Indicates codes reserved for the sibling portion of the question. Cross-tabulation analysis of differences in (dis)agreement by age (grade) for the Susan [$\chi^2(6, N = 1118) = 62.60, p < .001, \Phi_C = .237$] and Sister [$\chi^2(6, N = 1075) = 19.81, p < .01, \Phi_C = .136$] portions of the vignette were significant.

Conclusion

Contributions to Science and Practice

The two studies that comprise this dissertation were designed to advance our understanding of adolescents' responsiveness to situations where a peer may require help, as well as provide insight into the developmental underpinnings of social responsibility in adolescence. The first study employed a person-oriented quantitative approach to assess the likelihood that adolescents would use different proactive and passive strategies when confronted with a peer's tobacco and drug use. The results revealed four distinct profiles that held constant across time and age. As adolescents got older, they tended to move out of profiles that involved going to an adult or ending the friendship. Older adolescents showed a preference instead for sharing their concerns directly with their friend or doing nothing. Adolescents who were female, valued social responsibility, understood the risks of and refrained from substance use, and felt that substance use was not simply the individual user's business were more likely to endorse intervening on behalf of a friend. For the second study, a qualitative textual analysis was conducted on adolescents' written responses to questions regarding the acceptability, and corresponding justification, regarding marijuana use by a peer and a peer offering marijuana to her younger sister. The two-part nature of these open-ended questions allowed for the examination of within-person change in adolescents' acceptance and reasoning when marijuana use goes from being framed as an individual behavior to one that implicates others. For a variety of different reasons, most adolescents disagreed with a peer using marijuana or offering it to others. Often these reservations were steeped in concerns about the health and legal consequences posed by marijuana use. With few exceptions, adolescents rejected the idea of implicating other people – particularly a sibling – in one's personal marijuana

use decisions. Like in the quantitative study, clear developmental differences emerged in how early, middle, and late adolescents responded to a peer using or offering marijuana to others.

Contributions to the Scientific Literature

This dissertation builds on, brings together, and extends existing research in the fields of human development, prevention science, and social psychology. In particular, these two studies make several unique contributions to our understanding of how adolescents respond to the substance use behaviors of others. First, using diverse methodological approaches, both studies concluded that most adolescents take issue with a peer using tobacco and/or marijuana. Age differences notwithstanding, adolescents generally expressed a willingness to take some form of proactive action to discourage friends from using. Moreover, they overwhelmingly disagreed with a peer smoking marijuana or offering it to her sister out of concern for the health and legal consequences. For all that is said about adolescent substance use, seldom do we discuss why adolescents choose not to use or acknowledge the various ways adolescents help each other avoid these behaviors. While there are adolescents who would rather join a peer in using than intervene, these studies suggest most adolescents are aware of the consequences substance use poses and are willing to do something to prevent their peers or others from being harmed.

Second, each of these studies shows clear developmental patterns in adolescents' responses to the substance use of their peers. The position that substance use by a peer is unacceptable and warrants an intervention became increasingly unpopular with age. In early adolescence, young people sanctioned a diverse array of strategies to stop a friend from smoking cigarettes or using marijuana. At this age, young people appeared inclined to approach the friend directly, confide in an adult, and – if necessary – sever ties with the friend. While set within the specific context of marijuana use, the results of the open-ended responses suggest that early adolescents' willingness to intervene likely stems from their elevated disapproval and concerns about the risks substance use poses to users. Compared to older peers, early adolescents are also

more likely to consider marijuana use a “public” issue, one of particular concern to users’ family and friends. It is the combination of these beliefs – that substance use is harmful, an issue of public concern, and illegal – that, most likely, primes early adolescents to say that they will take action to discourage a friend from using. Endorsement of these beliefs declined across adolescence, however the most significant drop occurred between sixth and eighth grade. Similar patterns of decline in these beliefs were reflected both in response to a peer using marijuana and a peer offering it to a younger sibling. By late adolescence, about half of young people were best described as being unwilling to intervene in a friend’s tobacco or drug use. This change, as discussed below, likely stems from older adolescents’ increased acceptance and personal familiarity with these behaviors. Older adolescents were also more likely to believe substance use is a behavior individual’s have a right to choose for themselves. Simply put, early adolescents were more likely than most middle or late adolescents to oppose and intervene in the substance use behaviors of their peers.

Third, adolescents’ decreased willingness to discourage peers’ tobacco and marijuana use appears to be intimately linked to other developmental, social, and attitudinal changes occurring during this period. Of particular relevance are the increased rates of experimentation and increasingly favorable attitudes toward substance use that emerge in adolescence. Young people who use substances like tobacco or marijuana are less likely to see a peer’s engagement in similar behaviors as problematic which, in turn, makes it less likely that they will intervene. The models testing change over time in young people’s substance use and beliefs support this argument. Remaining and becoming an alcohol, cigarette, or marijuana user over the course of the study made it more likely that adolescents would not intervene in a friend’s use. Likewise, I also found that increased endorsement of substance use as safe and as an individual right predicted movement away from intervening. Thus, suggesting that if we want to empower young people to intervene in the risk behaviors of their peers, these would be likely prevention targets.

Fourth, as a result of these studies, we now better understand some of the factors that undergird adolescents' responses to the substance use of their peers. Quantitatively, this dissertation showed that being female, endorsing values of social responsibility, considering health a public issue, and abstaining from and perceiving substance use as unsafe were all predictive of taking action to intervene in the tobacco and marijuana use of a friend. Several of these same themes emerged in adolescents' open-ended reasoning about a peer smoking marijuana and offering it to her sister. As an example, both studies found links between adolescents' endorsement of substance use as a personal versus a public issue and their response to a peer's substance use. The latent mixture model revealed that when adolescents believed health was something individuals had the right to decide on autonomously, they were unlikely to intervene in the behavior of a friend. This relationship was supported both in the cross-sectional and developmental change models that were analyzed. Much the same, adolescents who agreed with a peer smoking marijuana and/or offering it to her younger sister usually did so from the position that substance use is a personal choice. Early adolescents, who were the least likely to support the use of marijuana, were also the least likely to endorse substance use as a personal right and the most likely to declare use an issue of public concern.

Lastly, these studies shed light on how adolescents think about the self and others in the context of substance use and with age. Most importantly, these studies show that adolescents care about others. This is reflected in their willingness to intervene in, and their opposition to, a peer using marijuana or offering it to others. Moreover, while some adolescents were able to justify inaction (reasoning use as harmless or a personal choice), very few were willing to endorse behavior that could have negative consequences for others. Older adolescents' increased capacity to think about others is reflected in several findings. For example, older adolescents were more apt to acknowledge that their peers have rights, including the right to use or abstain from substance use. Moreover, while older adolescents were less inclined to intervene in a friend's substance use,

when they do, they tended to favor talking to the friend directly; a choice that was likely driven by their desire to minimize the involvement of adults and keep the matter private. Older adolescents also expressed their concerns for a peer sharing marijuana with her sister differently than their younger peers. Unlike younger adolescents who were primarily concerned with the harm marijuana might pose to the sister, older adolescents were more likely to comment on the sister's developmental immaturity and to lambast the peer for neglecting her sisterly responsibilities of caring and protecting her sibling.

Implications for Prevention

This dissertation fills gaps in our understanding of a relatively untapped approach to the prevention of adolescent tobacco and drug use: adolescents intervening on behalf of peers. Knowledge of the developmental, social, and behavioral factors associated with the choice to either intervene in or ignore situations where peers may require help has direct implications for prevention and character education programming. Drawing from these empirical findings, we now have a better understanding of what factors motivate adolescents to act and which do not. The fact that adolescents think differently about risks to self and risks to others is a phenomenon rarely capitalized on in prevention programs. Ultimately, these findings may be used to inform the development of new school-based prevention curricula that promote both responsibility for one's self and for others, as well as provide opportunities for young people to build the skills and confidence necessary to take action when others engage in risky behaviors. Informed by the results of these studies, prevention scientists may consider supplementing existing substance use prevention curricula with components that focus on the power of positive influence between peers, role responsibilities, the consequences of substance use on others, and skill-building activities that teach adolescents the various ways of taking action when a peer needs help. Programs that frame avoidance of risky behavior as something peers do because they care about one another lays the foundation for socially responsible action.

Reframing how we talk to young people about responsibility – to the self and to others – opens an important avenue for preventing risk and promoting well-being. Assessment of responsibility figures prominently in social psychological models describing the decisions individuals make before deciding whether to help others. To the extent that we can get young people to buy in (whether it be by observing social responsibility in action or by fostering connections with others) to an ethic of shared responsibility, the more likely they are not only to help when needed, but also consider the consequences their own behaviors may have on others.

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VITA

Amy K. Syvertsen

EDUCATION

- 2010 Ph.D., Human Development and Family Studies, The Pennsylvania State University
- 2005 M.Ed., Youth and Family Education, The Pennsylvania State University
- 2002 B.S., Family and Consumer Science Education, North Dakota State University

FELLOWSHIPS

- 2005-2010 American Association of Family and Consumer Sciences
National Graduate Fellowship
- 2008-2010 Ruth L. Kirschstein National Research Service Award, Individual Award
National Institute on Drug Abuse
- 2007-2008 Ruth L. Kirschstein National Research Service Award, Institutional Award
National Institute on Drug Abuse
Prevention and Methodology Training Program

SELECT PUBLICATIONS

- Flanagan, C. A., **Syvertsen, A. K.**, Gill, S., Gallay, L. S., & Cumsille, P. (2009). Ethnic awareness, prejudice, and civic commitments in four ethnic groups of American adolescents. *Journal of Youth and Adolescence*, 38, 500-518. doi: 10.1007/s10964-009-9394-z
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