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Adolescent Motivations to Engage in Pro-Social Behaviors and Abstain From Health-Risk Behaviors: A Self-Determination Theory Approach

Sam A. Hardy,[1] David C. Dollahite,[1] Natalie Johnson,[2] and Justin B. Christensen[1]
[1]Brigham Young University
[2]University of Missouri–Columbia

Abstract

The present study used self-determination theory to examine adolescents' motivations to engage in charitable donating and community volunteering and to abstain from sexual intercourse and marijuana use. The sample consisted of 419 late adolescents recruited from across the country through an online survey panel. Participants completed online measures of motivations to engage in donating and volunteering, motivations to abstain from sex and marijuana, and single-item indexes of the four behaviors. Variable-centered analyses (correlation and regression) found evidence for a general motivational factor, motivational specificity by behavioral domain (positive and negative behaviors), motivational specificity by particular behavior (charitable donating, volunteering, sexual risk-taking, and marijuana use), and a stronger relative role for autonomous motivations than controlled motivations. Person-centered analyses (cluster analysis) found four motivation profiles (low motivation, medium motivation, high motivation, and mixed motivation) for all four behaviors and suggested that level of autonomous motivation was a key factor differentiating the groups on levels of behavior. The findings suggest different levels of motivational specificity and highlight the importance of autonomous motivations in predicting behaviors as compared to controlled motivations. Further, similar patterns were found for motivations to engage and to abstain.

Adolescence is a time of heightened involvement in pro-social behaviors as well as antisocial and risky behaviors (Veenstra, 2006). Research on predictors of such positive (Eisenberg, Fabes, & Spinrad, 2006) and negative (Morgado & Vale-Dias, 2013) adolescent behaviors has focused on social contexts such as family and peers, biological factors such as puberty and sex, and personality characteristics such as empathy and self-control. Less is known about adolescents' own explicit reasons to engage in positive behaviors and refrain from negative behaviors, even though such motivations may be salient proximal causes of action (Heckhausen & Heckhausen, 2008), functioning as social-cognitive mediators. Both types of motivation are important (i.e., to engage in positive behaviors and refrain from negative behaviors) because both lead to more positive outcomes for youth and could be leveraged to improve prevention, intervention, and youth development efforts. Self-determination theory (Deci & Ryan, 2012), one theory of motivation, could guide investigation of such explicit or deliberative adolescent motivations. The purpose of the present study was to use self-determination theory to examine adolescents' self-reported motivations to engage in charitable donating and community volunteering and to abstain from sexual intercourse and marijuana use.

Motivations to Engage in Positive Behaviors

We know little about people's own explicit reasons for engaging in pro-social behaviors. In one study, Israeli kibbutz youth expressed a mix of collectivistic and individualistic motives for volunteerism (Avrahami & Dar, 1993). Another study (Bar-Tal, Raviv, & Shavit, 1981) showed developmental progression across childhood from more externally motivated helping behaviors (i.e., helping because they are told to help and are rewarded for doing so) to more internally motivated

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Correspondence concerning this article should be addressed to Sam A. Hardy, Department of Psychology, Brigham Young University, 1040 SWKT, Provo, UT 84602-5543. Email: sam_hardy@byu.edu.

ones (i.e., helping because they enjoy it). However, most studies of adolescent pro-social motivation grounded in self-determination theory have not reported links to behaviors (e.g., Hardy, Padilla-Walker, & Carlo, 2008; Krettenauer, 2011). One exception is a study that reported modest positive correlations between adolescents' internalization of pro-social values and adolescent and parent reports of pro-social behaviors (Padilla-Walker, Fraser, & Harper, 2012). Nevertheless, one study of college students examined the relative roles of controlled versus autonomous motivations in predicting different types of pro-social behaviors (Barry, Padilla-Walker, Madsen, & Nelson, 2008). Autonomous motivations to engage in pro-social behavior were positively predictive of self-reported tendencies to engage in pro-social behaviors in various contexts, whereas controlled motivations were either unrelated or negatively predictive. More recently, Weinstein and Ryan (2010) provided correlational and experimental evidence suggesting that autonomous motivations to help may generate more pro-social behavior than controlled motivations to help.

Motivations to Abstain From Negative Behaviors

Most research looking at adolescent explicit motivations regarding sexual activity and substance use has focused on reasons why adolescents *do* these behaviors. Little work has examined motivations for abstaining, or *not doing* these behaviors. Some might think that *doing* and *not doing* are simply opposite ends of a continuum, so there is little need to study both. Others may assume that engaging in positive behaviors is largely approach-oriented, whereas refraining from negative behaviors is largely avoidance-oriented. However, recently it has been empirically demonstrated that these notions of *not doing* may be incorrect (Richetin, Conner, & Perugini, 2011). In the first case, *not doing* a particular behavior does not simply stem from lack of motivation to do it, but might also include motivations for *not doing* (i.e., perhaps it is not that abstinent teens lack motivations to engage in risk behaviors, but their motivations to abstain are just more salient to them). Similarly, there is evidence that teens do not just abstain because of avoidance motivations, but often they do so in pursuit of other positive values or goals (Abbott & Dalla, 2008; Blinn-Pike, Berger, Hewett, & Oleson, 2004; Patrick et al., 2010).

There are a few studies of teens' motivations to abstain from sex and substance use. One qualitative study (Patrick et al., 2010) found the following types of reasons for abstinence from sex and substance use: physical or behavioral consequences, ethical objections, social disapproval, and incompatible activities and goals. A quantitative study (Blinn-Pike et al., 2004) found that sexual abstinence motivation items factored into fear-based postponement (e.g., fear of pregnancy), emotionality and confusion (e.g., too embarrassed), and conservative values. Yet, this work has been mainly exploratory and atheoretical.

Self-Determination Theory

As can be seen from the review above, more theory-driven research examining adolescents' explicit motivations to engage in pro-social behaviors and abstain from health-risk behaviors is needed. One theory that is well positioned to guide such empirical research is self-determination theory (Deci & Ryan, 2012). According to self-determination theory, five major kinds of motivations fall on a continuum from more controlled to more autonomous. Typically, autonomous motivations more strongly predict behavior than controlled motivations, since people are doing things because they want to and not because they have to.

First, *external motivation* is where behavior is controlled via socially contingent external punishments and rewards.

Second, when behavior is controlled via internal consequences such as shame, self-acceptance, and approval from others, it is *introjected motivation*.

Third, with *identified motivation*, behavior is driven by internalized values—in other words, action is motivated by an understanding or acceptance of the importance or value of a behavior.

Fourth, *integrated motivation* is when internalized values are assimilated into the self-system and unified with life goals—in other words, engaging in a particular action is not just driven by isolated values, but is interconnected with many aspects of who the person is and wants to be.

Fifth, the most autonomous form of motivation is *intrinsic motivation*, where people engage in behavior out of the joy of doing so, or out of curiosity or interest—in other words, the behavior is inherently enjoyable.

Thus far, little work has used self-determination theory to understand adolescent motivations to engage in pro-social behaviors and abstain from health-risk behaviors. Most self-determination theory studies of adolescent positive behaviors have targeted academic achievement (Ryan & Connell, 1989), whereas a few have looked at pro-social behaviors (Padilla-Walker et al., 2012; Weinstein & Ryan, 2010) and environmentalism (Renaud-Dubé, Taylor, Lekes, Koestner, & Guay, 2010). As expected, these studies generally report that autonomous motivations more strongly predict pro-social behaviors than controlled motivations.

Abstinence motivations have not yet been adequately addressed in self-determination theory research, although there is some work on smoking cessation among adults (Williams, Niemiec, Patrick, Ryan, & Deci, 2009). In that study, Williams and colleagues demonstrated how a smoking intervention facilitated prolonged abstinence from smoking in part by raising autonomous motivations to quit smoking. To our knowledge, no research has yet used self-determination theory to examine abstinence motivations in youth. Again, we believe that it is important to study abstinence motivations,

particularly using self-determination theory, as motivations to abstain may not all be avoidance-oriented (i.e., it may not just be about *not doing* the behavior, but could also be about moving toward certain values or goals associated with abstinence from negative behaviors). Similarly, since it is important not only to promote positive behaviors in youth but also to promote abstention from negative behaviors, it seems that an understanding of abstinence motivations, as distinct from pro-social motivations, is critical.

The Present Study

In this study, we used self-determination theory as a framework for understanding adolescents' explicit motivations to engage in pro-social behaviors and abstain from health-risk behaviors. The pro-social behaviors of interest were charitable donation and volunteerism; the health-risk behaviors were sexual intercourse and marijuana use. We chose these behaviors in part because they are discrete variables and thus easier to operationalize. Volunteerism is frequently used as a marker of pro-social involvement (Piliavin, 2010), and charitable donation is an index of generosity, a topic of increasing interest in the field (Lerner, Roeser, & Phelps, 2008). We include sexual intercourse as a health-risk behavior in the present study because it is one of the more frequently engaged-in health-risk behaviors among adolescents (Crockett, Raffaelli, & Moilanen, 2003). Teen sex is considered a health-risk behavior because the earlier the transition to sexual activity, the greater the risk of pregnancy and sexually transmitted infections (O'Donnell, O'Donnell, & Stueve, 2001). Marijuana use was examined as the second health-risk behavior due to increasing rates of use that now nearly parallel rates for alcohol use among U.S. teens (Johnston, O'Malley, Bachman, & Schulenberg, 2010).

We took two approaches to analyzing these data: a variable-centered approach and a person-centered approach. Both are valuable and provide different vantage points for understanding behavior and development (Bergman & Magnusson, 1997; Bergman & Trost, 2006; DiStefano, 2012; von Eye, Bogat, & Rhodes, 2006). In variable-centered analysis approaches, which are predominant in the social sciences, the primary theoretical and analytical units are variables, and the purpose is to understand average individual differences in interrelations among variables. The limitation is that they assume all individuals in the sample are the same (and the relations among variables are uniform across people), when in fact the result may not apply to any individuals specifically. Person-centered analyses, on the other hand, focus on the person as the unit of analysis and more holistically examine individual patterns or profiles across different variables, with the purpose of seeking to understand similarities and differences among individuals. Person-centered approaches thus are better able to account for heterogeneity in the sample regarding relations between variables and provide a picture of the most common ways the variables are manifest in people in the population of interest. Using both approaches in the same study can provide greater understanding by allowing researchers to get two different angles on the phenomena.

First, we used variable-centered analyses to assess the relative roles of different forms of motivation in predicting the pro-social and health-risk behaviors. Self-determination theory suggests that the more internalized or autonomous motivations are, the more strongly they will be linked to behaviors (Deci & Ryan, 2012). Indeed, studies comparing the relative role of different forms of motivation have shown that autonomous motivations (i.e., identified, integrated, and intrinsic motivations) predict outcomes better than controlled motivations (i.e., external and introjected motivations; e.g., Barry et al., 2008; Ryan & Connell, 1989; Weinstein & Ryan, 2010). Similarly, studies looking at overall internalization (often called relative autonomy) have found that more internalized motivations are positively associated with adaptive outcomes and negatively associated with maladaptive outcomes (e.g., Longbottom, Grove, & Dimmock, 2012; Renaud-Dubé et al., 2010; Williams et al., 2009).

We used person-centered analyses to compare individuals with different patterns of motivation on levels of behaviors to determine whether motivational profiles differentially relate to behavior. Doing so allows for the possibility that the link between motivation and outcomes is not perfectly linear, wherein more internalized motivations predict higher rates of adaptive behaviors and lower rates of maladaptive behaviors (Koestner & Losier, 2002). Rather, there may be profiles of motivations that are more or less adaptive than others, as well as some profiles that are nearly indistinguishable from others in terms of links to outcomes. Indeed, prior person-centered analysis of motivational profiles have typically found two to four different profiles based on relative levels of the four types of motivation individually or controlled versus autonomous motivation more generally. Typical patterns include people high on both controlled and autonomous motivations, people low on controlled but high on autonomous motivations, people high on controlled but low on autonomous motivations, and people low on both. Most often, people high on autonomous but low on controlled are more adaptive (Boiché, Sarrazin, Grouzet, Pelletier, & Chanal, 2008; Hayenga & Corpus, 2010; Vansteenkiste, Sierens, Soenens, Luyckx, & Lens, 2009). However, sometimes those high on both are most adaptive (Vlachopoulos, Karageorghis, & Terry, 2000), or the distinctly least adaptive people are those high on controlled and low on autonomous motivation (Gillet, Vallerand, & Rosnet, 2009). In general, though, the level of autonomous motivation seems to matter more than the level of controlled motivation (Ullrich-French & Cox, 2009).

METHOD

Participants

The sample consisted of adolescents ($N = 419$; age range: 15–18, $M = 15.68$, $SD = 1.44$; 55.6% male; 84% European

American, 5% Hispanic, 5% Asian American, 4% African American, 2% other ethnicities). They came from families in 45 states in the United States, 64% were living with two biological or adoptive parents who were married and had never been divorced, and the median annual household income range was $75,000–$99,999.

Procedures

Adolescents were recruited via an email sent to one of their parents through eRewards, an online survey panel (www.e-rewards.com). This survey panel includes over three million people recruited by invitation only using customer directories from partner businesses such as Pizza Hut and Best Buy. Only parents with adolescents ranging in age from 15 to 18 were contacted, and in the email, parents had the option of clicking on a link to the survey (administered through Qualtrics; www.qualtrics.com). The first page of the survey provided information about the study and asked for parental permission for their adolescent to participate. If the parent consented, he or she was prompted to ask the adolescent child to complete the youth survey. If adolescents assented, they were then directed to the youth survey. Once adolescents completed the youth survey, they were prompted to ask their parent (the initial contact) if he or she would fill out the parent survey. Parents who consented were directed to the parent survey. Although the youth and parent portions were accessed through the same Web link, they could be taken at separate times, and parents were blocked from going back to see youth responses. Participants were allowed to skip questions they did not want to answer, but they were prompted for a response anytime they left something unanswered. The participants were compensated through eRewards based on level of completion of the survey.

Measures

Adolescent Motivations. Adolescents' motivations to engage in charitable donations and volunteerism and motivations to abstain from sexual intercourse and smoking marijuana were assessed using 36 items based on existing self-determination theory measures of motivation (e.g., Hardy, Padilla-Walker, & Carlo, 2008; Ryan & Connell, 1989; Williams et al., 2009). We adapted measures from these previous studies by using fewer items and items more relevant to adolescents. For motivations to engage in each pro-social behavior, there were two items for each type of motivation: *external* (sample item: "Because I feel pressure from others to give money"), *introjected* (sample item: "Because I want to feel good about myself"), *identified* (sample item: "Because I believe it is best to give to those in need"), *integrated* (sample item: "Because helping others is consistent with what I value most in life"), and *intrinsic* (sample item: "Because it is fun to help others"). The instructions were as follows: "Please rate the following reasons why you would donate money to a church or charity" and "Please rate the following reasons why you would volunteer your time (e.g., at a homeless shelter) doing community service or would start volunteering."

For motivations to abstain from the health-risk behaviors, there were two items for each type of motivation: *external* (sample item: "Because I feel pressure from others to be sexually abstinent"), *introjected* (sample item: "Because I do not want to disappoint my parents"), *identified* (sample item: "Because abstinence from drugs is an important principle for me"), and *integrated* (sample item: "Because sexual abstinence is consistent with what I value most in life"). We did not assess intrinsic motivation because it did not seem theoretically tenable. The instructions were as follows: "Please rate the following reasons why you would quit being sexually active or would remain sexually abstinent" and "Please rate the following reasons why you would quit using marijuana or continue to abstain from marijuana." Responses ranged from 1 (*Not true at all*) to 7 (*Very true*).

Composite scores were created using three commonly used approaches. First, for each type of motivation for each behavior, we averaged the two items, yielding external, introjected, identified, and integrated scale scores for all four behaviors, as well as intrinsic for donating and volunteering. Reliabilities (Cronbach's alphas) were as follows: donating ($\alpha = .52$, $\alpha = .71$, $\alpha = .89$, $\alpha = .88$, $\alpha = .81$), volunteering ($\alpha = .55$, $\alpha = .74$, $\alpha = .88$, $\alpha = .91$, $\alpha = .86$), sex ($\alpha = .42$, $\alpha = .76$, $\alpha = .93$, $\alpha = .88$), and marijuana ($\alpha = .54$, $\alpha = .75$, $\alpha = .84$, $\alpha = .89$). Second, we created a weighted composite (i.e., relative autonomy index) to capture overall self-determination. To do so, the two items for each type of motivation for each behavior were averaged. Then these scores were weighted as follows: external (−2), introjected (−1), identified (+1), integrated (+2), and intrinsic (+3). Third, for each behavior, we averaged the external and introjected items to create a controlled motivation composite (donating $\alpha = .73$; volunteering $\alpha = .77$; sex $\alpha = .77$; marijuana $\alpha = .78$), and the identified, integrated, and intrinsic (intrinsic was only available on the pro-social behaviors) items were averaged to create an autonomous motivation composite (donating $\alpha = .94$; volunteering $\alpha = .95$; sex $\alpha = .94$; marijuana $\alpha = .93$).

Adolescent Behaviors. Adolescents reported the extent to which they had engaged in charitable donation, volunteerism, sexual intercourse, and smoking marijuana using the following 4-point scale: 1 (*Never in my lifetime*), 2 (*At least once in my lifetime, but not in the past year*), 3 (*At least once in the past year, but not in the last 30 days*), and 4 (*At least once in the last 30 days*).

RESULTS

Preliminary Analyses

Descriptive statistics for the relative autonomy indexes, the controlled and autonomous motivation scale scores, and the

behaviors are reported in Table 1. All variables were approximately normally distributed, with the exception of sexual intercourse and marijuana use, which were moderately skewed (2.51 and 2.77, respectively). Bivariate correlations between all types of motivation across all behaviors are reported in Table 2. The intercorrelations between the types of motivation for a particular behavior roughly seemed to follow the prescribed simplex structure, with each type of motivation being more strongly correlated with other types of motivation closer on the motivation continuum, and more weakly correlated with other types of motivation farther away on the motivation continuum (Ryan & Connell, 1989). The bivariate correlations among the relative autonomy indexes, controlled and autonomous scale scores, and behaviors are presented in Table 3. First, all controlled motivation composites were positively correlated, as were all autonomous motivation composites and all relative autonomy indexes. However, correlations within type of behavior (pro-social or health risk) were stronger than those across type of behavior. Further, controlled motivation composites were positively correlated with autonomy motivation composites, and these were strongest for correlations within a particular behavior. Second, motivations for engaging in pro-social behaviors tended to be more strongly correlated with participation in pro-social behaviors than risk behaviors, and motivations to abstain from risk behaviors tended to be more strongly correlated with participation in risk behaviors than pro-social behaviors.

Table 1 Descriptive Statistics

	M	*SD*
Donating–External	3.68	1.57
Donating–Introjected	4.58	1.60
Donating–Identified	5.50	1.38
Donating–Integrated	5.13	1.52
Donating–Intrinsic	5.16	1.47
Volunteering–External	3.58	1.56
Volunteering–Introjected	4.56	1.57
Volunteering–Identified	5.22	1.46
Volunteering–Integrated	5.18	1.56
Volunteering–Intrinsic	5.23	1.47
Sex–External	4.39	1.45
Sex–Introjected	4.68	1.79
Sex–Identified	4.60	2.06
Sex–Integrated	4.39	2.06
Marijuana–External	5.04	1.55
Marijuana–Introjected	5.29	1.68
Marijuana–Identified	5.97	1.47
Marijuana–Integrated	5.71	1.67
Donating–Relative autonomy index	19.29	7.53
Volunteering–Relative autonomy index	19.55	8.01
Sex–Relative autonomy index	–.07	4.73
Marijuana–Relative autonomy index	2.02	4.17
Donating–Controlled motivation	4.13	1.38
Volunteering–Controlled motivation	4.07	1.40
Sex–Controlled motivation	4.54	1.46
Marijuana–Controlled motivation	5.17	1.46
Donating–Autonomous motivation	5.31	1.40
Volunteering–Autonomous motivation	5.20	1.46
Sex–Autonomous motivation	4.49	1.98
Marijuana–Autonomous motivation	5.84	1.53
Donating–Behavior	3.00	.92
Volunteering–Behavior	2.64	1.02
Sex–Behavior	1.32	.84
Marijuana–Behavior	1.25	.68

Note. The *ns* range from 345 to 363.

Variable-Centered Analyses

Two path analyses with observed variables were estimated in Mplus (Version 6) using full information maximum likelihood estimation, which includes all cases with any available data. The purpose of the first model was to assess the relative role of the four relative autonomy indexes in predicting the four different behaviors, to establish the extent to which there is domain overlap in motivations. In this model, the four relative autonomy indexes were entered as predictors of the four behaviors (all possible paths were specified), controlling for age and gender (see Table 4). The model fit perfectly, as it was a saturated model. Age was positively predictive of sex and marijuana use. For all four behaviors, the relative autonomy index for each specific behavior was significantly predictive of that behavior.

The purpose of the second model was to assess the relative roles of controlled and autonomous motivations in predicting the four types of behaviors. In this model, for each behavior, controlled motivation and autonomous motivation were entered as predictors for the particular behavior, controlling for age and gender (see Table 4). The model was not saturated, as cross-domain paths (from motivations for a particular behavior to participation in a different behavior) were omitted, but the model fit well, $\chi^2(24) = 47.71$, $p = .003$, CFI = .95, RMSEA = .05. For donating, volunteering, and marijuana use, autonomous motivation but not controlled motivation was predictive of behavior. For sexual intercourse, both controlled and autonomous motivations were predictive of behavior.

Person-Centered Analyses

The person-centered analyses were conducted using cluster analysis, following the two-step procedure suggested by Gore (2000). First, we used hierarchical cluster analysis to determine the number of clusters. Second, we used k-means cluster analysis to partition people into cluster (i.e., assign cluster membership). K-means clustering is preferable for partitioning because it uses an iterative process to assign cases to clusters in a way that minimizes within-cluster variability, and it allows cases to be reassigned to different clusters throughout the process. However, the researcher must specify the number of clusters a priori. Thus, the recommended procedure is to use hierarchical cluster analysis to determine the number of clusters, and then building on those results, use k-means cluster analysis to partition cases into clusters.

Table 2 Bivariate Correlations Among Types of Motivation

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Don–External																	
2. Don–Introjected	.53*																
3. Don–Identified	.28*	.43*															
4. Don–Integrated	.33*	.46*	.86*														
5. Don–Intrinsic	.28*	.47*	.76*	.79*													
6. Vol–External	.81*	.55*	.27*	.30*	.28*												
7. Vol–Introjected	.50*	.81*	.37*	.39*	.43*	.60*											
8. Vol–Identified	.24*	.34*	.79*	.79*	.74*	.27*	.42*										
9. Vol–Integrated	.26*	.39*	.77*	.81*	.71*	.27*	.46*	.87*									
10. Vol–Intrinsic	.22*	.36*	.74*	.76*	.79*	.27*	.45*	.85*	.85*								
11. Sex–External	.31*	.33*	.22*	.24*	.29*	.31*	.32*	.19*	.20*	.21*							
12. Sex–Introjected	.37*	.34*	.35*	.36*	.38*	.34*	.35*	.36*	.35*	.36*	.63*						
13. Sex–Identified	.26*	.25*	.42*	.42*	.42*	.22*	.24*	.45*	.42*	.43*	.39*	.66*					
14. Sex–Integrated	.31*	.28*	.42*	.46*	.45*	.25*	.27*	.43*	.48*	.43*	.48*	.70*	.85*				
15. Mar–External	.29*	.36*	.26*	.26*	.25*	.29*	.36*	.22*	.24*	.24*	.61*	.50*	.28*	.31*			
16. Mar–Introjected	.27*	.36*	.29*	.29*	.34*	.27*	.35*	.27*	.28*	.29*	.51*	.61*	.43*	.45*	.64*		
17. Mar–Identified	.13*	.28*	.40*	.38*	.36*	.09	.24*	.34*	.38*	.38*	.36*	.50*	.50*	.50*	.45*	.63*	
18. Mar–Integrated	.21*	.31*	.39*	.40*	.39*	.16*	.29*	.36*	.42*	.38*	.41*	.53*	.54*	.58*	.45*	.64*	.89*

Note. The *ns* rangefrom 343 to 347. Don = donating; Vol = volunteering;, Sex = sexual intercourse; Mar = marijuana use.
*$p < .05$ (although some correlations were significant at the $p < .01$ and $p < .001$ levels, we only indicated $p < .05$ to save space).

Table 3 Bivariate Correlations with Behaviors

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Donating–RAI															
2. Volunteering–RAI	.84*														
3. Sex–RAI	.29*	.36*													
4. Marijuana–RAI	.22*	.26*	.43*												
5. Donating–CMC	−.04	−.06	.04	−.10											
6. Volunteering–CMC	−.01	−.07	.001	−.15*	.85*										
7. Sex–CMC	.18*	.14*	−.05	−.11*	.43*	.41*									
8. Marijuana–CMC	.16*	.12*	−.07	−.34*	.40*	.40*	.68*								
9. Donating–AMC	.81*	.71*	.30*	.16*	.45*	.39*	.35*	.31*							
10. Volunteering–AMC	.74*	.84*	.34*	.16*	.36*	.41*	.33*	.29*	.85*						
11. Sex–AMC	.35*	.37*	.71*	.24*	.33*	.28*	.66*	.43*	.47*	.48*					
12. Marijuana–AMC	.33*	.34*	.28*	.51*	.27*	.23*	.52*	.62*	.42*	.40*	.57*				
13. Donating–Beh	.45*	.39*	.15*	.16*	.19*	.19*	.17*	.15*	.46*	.44*	.22*	.26*			
14. Volunteering–Beh	.27*	.31*	.04	−.01	.13*	.17*	.18*	.15*	.31*	.39*	−.16*	.12*	.47*		
15. Sex–Beh	−.06	−.06	−.23*	−.10	−.07	−.03	−.35*	−.25*	−.05	−.05	−.42*	−.30*	−.06	−.03	
16. Marijuana–Beh	−.08	−.11	−.23*	−.31*	−.10	−.10	−.26*	−.34*	−.10	−.13*	−.35*	−.55*	−.06	−.11*	.46*

Note. The *ns* range from 335 to 363. RAI = relative autonomy index; CMC = controlled motivation composite; AMC = autonomous motivation composite; Beh = behavior.
*$p < .05$ (although some correlations were significant at the $p < .01$ and $p < .001$ levels, we only indicated $p < .05$ to save space).

To determine the number of clusters, a series of hierarchical cluster analyses was conducted in SPSS (Version 20) to identify groups of participants with different profiles of motivations. A separate set of analyses was conducted for each behavioral domain, using the controlled and autonomous motivation composites as the clustering variables. In these analyses, missing data were handled using listwise deletion. The cluster analyses used Ward's method based on squared Euclidian distances. A standard procedure for identifying the number of clusters involves examining the agglomeration schedules and dendograms, and then seeking to identify a cluster solution that maximizes interpretability and parsimony, which yields roughly uniform cluster sizes (Hair, Black, Babin, Anderson, & Tatham, 2006). For all four behaviors, this procedure pointed to a four-cluster solution.

Next, we used k-means clustering to partition cases into clusters. For each behavioral domain, we saved out the cluster means from the four-cluster solution generated by the hierarchical cluster analysis and then used those cluster means as initial cluster centers in the k-means cluster analysis. This provides a good starting point for the iterative process of assigning cases to clusters in a way that minimizes within-

Table 4 Path Models Predicting Behaviors

	Outcomes			
	Donating *β (SE)*	Volunteering *β (SE)*	Sex *β (SE)*	Marijuana *β (SE)*
Model 1 Predictors				
Donating–RAI	0.43*** (.09)	0.05 (.09)	–0.07 (.09)	0.04 (.09)
Volunteering–RAI	0.02 (.09)	0.30** (.10)	0.08 (.10)	–0.03 (.10)
Sex–RAI	–0.01 (.06)	–0.05 (.06)	–0.24*** (.06)	–0.11 (.06)
Marijuana–RAI	0.05 (.06)	–0.10 (.06)	–0.02 (.06)	–0.28*** (.06)
Model 2 Predictors				
Donating–CMC	0.01 (.05)	—	—	—
Donating–AMC	0.46*** (.05)	—	—	—
Volunteering–CMC	—	0.02 (.05)	—	—
Volunteering–AMC	—	0.36*** (.05)	—	—
Sex–CMC	—	—	–0.15* (.06)	—
Sex–AMC	—	—	–0.31*** (.06)	—
Marijuana–CMC	—	—	—	0.04 (.06)
Marijuana–AMC	—	—	—	–0.57*** (.05)

Note. $N = 419$ (for both models). Coefficients are standardized regression weights. RAI = relative autonomy index; CMC = controlled motivation composite; AMC = autonomous motivation composite.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 5 Cluster Comparisons

	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*	*F*-test, eta-squared
Donating	Low ($n = 103$)	Moderate ($n = 80$)	High ($n = 89$)	Mixed ($n = 65$)	
Controlled	3.26_a (.94)	4.57_b (.53)	5.74_c (.79)	2.82_d (.82)	$F(3, 333) = 228.12$, $p = .0001$, $\mu^2 = .67$
Autonomous	3.68_a (.83)	5.17_b (.59)	6.68_c (.42)	6.26_d (.69)	$F(3, 333) = 387.33$, $p = .0001$, $\mu^2 = .78$
Behavior	2.47_a (.96)	3.03_b (.84)	3.44_c (.74)	3.31_{bc} (.71)	$F(3, 333) = 25.44$, $p = .0001$, $\mu^2 = .19$
Volunteering	Low ($n = 31$)	Moderate ($n = 124$)	High ($n = 106$)	Mixed ($n = 76$)	
Controlled	2.27_a (.79)	4.07_b (.62)	5.52_c (.84)	2.82_d (.96)	$F(3, 333) = 243.39$, $p = .0001$, $\mu^2 = .68$
Autonomous	2.52_a (.90)	4.28_b (.66)	6.43_c (.60)	6.12_d (.73)	$F(3, 333) = 392.63$, $p = .0001$, $\mu^2 = .78$
Behavior	1.87_a (1.06)	2.43_b (.98)	2.94_c (.99)	2.91_c (.87)	$F(3, 333) = 13.93$, $p = .0001$, $\mu^2 = .11$
Sex	Low ($n = 53$)	Moderate ($n = 99$)	High ($n = 124$)	Mixed ($n = 60$)	
Controlled	2.23_a (.75)	4.39_b (1.02)	5.72_c (.87)	4.46_b (.67)	$F(3, 332) = 202.56$, $p = .0001$, $\mu^2 = .65$
Autonomous	1.62_a (.75)	4.67_b (.76)	6.52_c (.58)	2.71_d (.66)	$F(3, 332) = 827.99$, $p = .0001$, $\mu^2 = .88$
Behavior	2.06_a (1.35)	1.21_{bc} (.64)	1.01_b (.09)	1.48_c (.97)	$F(3, 332) = 25.20$, $p = .0001$, $\mu^2 = .19$
Marijuana	Low ($n = 25$)	Moderate ($n = 84$)	High ($n = 166$)	Mixed ($n = 61$)	
Controlled	2.35_a (.90)	4.82_b (.91)	6.26_c (.61)	3.93_d (.84)	$F(3, 332) = 288.55$, $p = .0001$, $\mu^2 = .72$
Autonomous	2.04_a (.92)	4.52_b (.74)	6.80_c (.37)	6.52_d (.58)	$F(3, 332) = 701.07$, $p = .0001$, $\mu^2 = .86$
Behavior	2.40_a (1.26)	1.49_b (.86)	1.05_c (.27)	1.08_c (.33)	$F(3, 332) = 43.66$, $p = .0001$, $\mu^2 = .28$

Note. Means with different subscripts within rows were significantly different in pairwise follow-up Tukey tests. All of the univariate *F*-tests returned a *p*-value of .000 in SPSS, so they are reported here as $p = .0001$.

cluster variability. We then retrieved descriptive statistics and plots for the four motivation clusters for each behavioral domain (see Table 5 for means; see Figures 1–4 for the motivation profiles). The cluster profiles looked similar across the four behavioral domains, with the following four clusters being identified: a *low motivation group* that was low on controlled and autonomous motivations, a *moderate motivation group* that was medium on both, a *high motivation group* that was high on both, and a *mixed motivation group* that was low on controlled and high on autonomous motivation for donating, volunteering, and marijuana use, but the opposite for sex. For donating, the *low motivation group* was the largest; for volunteering, it was the *moderate motivation group*; and for sex and marijuana, it was the *high motivation group*.

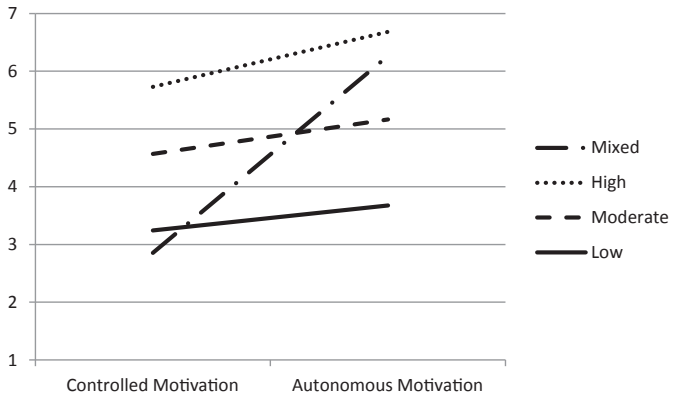

Figure 1 Motivation profiles for donating.

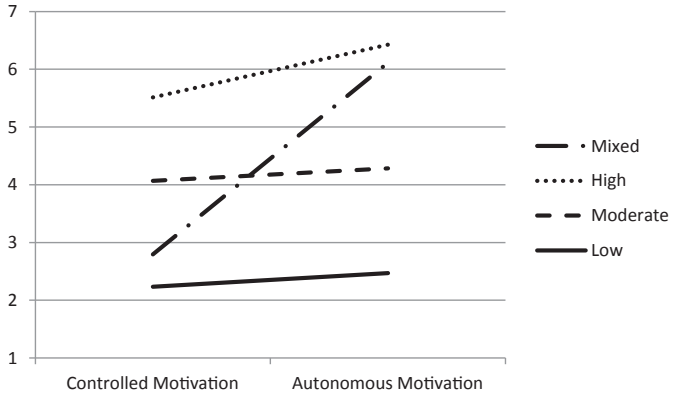

Figure 2 Motivation profiles for volunteering.

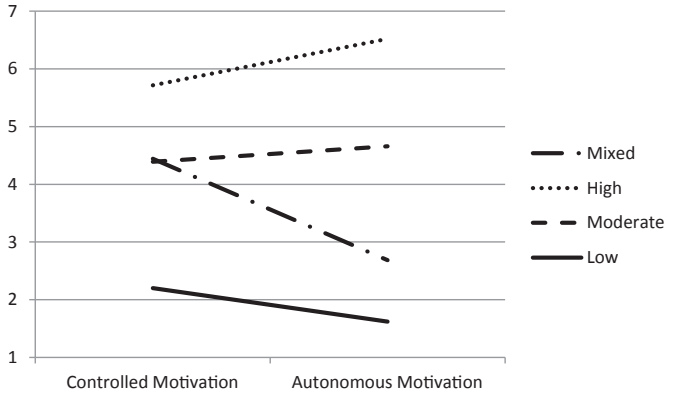

Figure 3 Motivation profiles for sex.

Cluster membership, as assigned through the k-means clustering, was saved as a variable. Then for each cluster on each behavior, a dependent means *t*-test was conducted to examine within-person differences between controlled and autonomous motivation. For donating, within each of the four clusters, autonomous motivation was significantly higher than controlled motivation. For volunteering, autonomous motivation was significantly higher than controlled motivation for all clusters except the low motivation group (however, this may be partially due to the small cluster size: $n = 31$). For sexual intercourse, autonomous motivation was significantly higher than controlled motivation for the high group, whereas the inverse was true for the mixed and low motivation groups, and there were no differences for the moderate group. Lastly, for marijuana use, autonomous motivation was significantly higher than controlled motivation for the high and mixed motivation groups, but the opposite was true for the moderate group, and there were no differences for the low group.

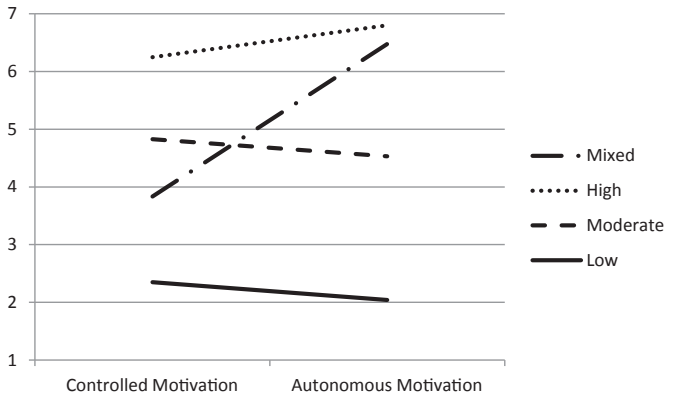

Figure 4 Motivation profiles for marijuana.

Next, for each behavior domain, a MANOVA was conducted comparing the clusters on the controlled and autonomous motivation indexes and participation in the behavior (see Table 5, as well as Figures 1–4). In all cases, the multivariate and univariate *F*-tests were significant. Tukey post hoc comparisons were examined to compare clusters. The general trend for all four behaviors was that controlled motivation was lowest for the low or mixed group, then the moderate group, then the high group. The exception was that for donating, the mixed group was actually the lowest on controlled motivation. On autonomous motivation, generally the low group was the lowest, followed by the moderate group, and then the mixed, and finally the high group. The exception is that for sex, the mixed group had the second lowest on autonomous motivation. In terms of behavior, in all cases the low motivation group had the lowest rates of positive behaviors and highest rates of negative behaviors, and the high group had the highest rates of pro-social behaviors and lowest rates of negative behaviors. However, for donating, volunteering, and marijuana, the high group was not significantly different from the mixed group. For sex, the high group was not significantly different from the moderate group. The moderate motivation group was neither lowest or highest, but somewhere in between, for all four behaviors. Thus, it appeared that the key to differentiating behavior was the level of autonomy. The exception is that controlled motivation played some role for sex.

DISCUSSION

This article reports on a self-determination theory analysis of adolescents' motivation to engage in charitable donating and community volunteering and abstain from sexual intercourse and marijuana use. Variable-centered analyses found evidence for a general motivational factor, motivational specificity by behavioral domain (positive and negative behaviors), motivational specificity by particular behavior (charitable donating, volunteering, sexual risk-taking, and marijuana use), and a stronger relative role for autonomous motivations than controlled motivations. Person-centered analyses found a set of four motivation profiles (low motivation, medium motivation, high motivation, and mixed motivation) for all four behaviors and suggested that level of autonomous motivations was a key factor differentiating the groups on levels of behavior. Although findings across the two analytic approaches were congruent in highlighting the importance of autonomous motivation, and the potential distinctive role of controlled motivations to abstain from sex, each provided unique information that allowed for greater understanding of adolescent motivation. Thus, integrating variable-centered and person-centered approaches to the data painted a fuller picture of the phenomena.

First, we found evidence for a global or general motivational factor. In other words, generally teens who were higher on controlled motivations were also higher on autonomous motivations. Further, in many cases, youth who were more self-determined toward one behavior were also more self-determined toward other behaviors. This is in line with prior work suggesting a general or dispositional level of motivation (Pelletier & Dion, 2007; Vallerand & Ratelle, 2002). Some teens, perhaps due to differences in biology, personality, environment, and relationships, are more inclined to do things for self-regulated reasons, rather than based on socially contingent external consequences or self-evaluative affect.

Second, our results indicated that, to some extent, motivations are specific to particular behavioral domains, or what has been called the "contextual level" (Vallerand & Ratelle, 2002). Individuals with similar global levels of motivation may still have varied motivations across different domains of behavior, but there may be some uniformity of motivations within behavior domains. In our study, motivations for one pro-social behavior were more strongly associated with motivations for the other pro-social behavior than with health-risk abstinence motivations. Similarly, abstinence motivations for one health-risk behavior were more strongly associated with the other abstinence motivation than with the pro-social motivations. Thus, to some extent, internalized motivations to engage in a specific behavior may generalize to other similar behaviors.

Third, in addition to evidence for global and contextual levels of motivation, we also found some specificity at the level of a particular behavior. In other words, at the most specific level, motivations for a particular behavior were most strongly linked to that behavior than to any other behavior, even the other behavior in the same domain. When all four relative autonomy indexes were put in the same model predicting all four behaviors, the only significant paths were behavior-specific. This finding adds to the prior literature by suggesting that there may be a level between the contextual level (i.e., domains of behavior) and the situational level (i.e., behaviors in very specific situations; Vallerand & Ratelle, 2002) that is a particular form of a behavior (e.g., charitable giving vs. volunteering as two different forms of pro-social behavior).

Fourth, although both controlled and autonomous motivations were linked to behaviors, in most cases it was autonomous motivations that made the most unique contribution to predicting variability in the behaviors. This aligns with self-determination theory (Deci & Ryan, 2012) and prior studies (e.g., Barry et al., 2008; Ryan & Connell, 1989; Weinstein & Ryan, 2010) and suggests that more autonomous, self-regulated, or self-determined motivations are more powerful and reliable motivators of behavior than controlled motivations. These findings extend this literature by demonstrating how the relative importance of autonomous motivations holds true for reasons to abstain from negative behaviors as it does for reasons to engage in pro-social behaviors. In other words, autonomous motivations to abstain from health-risk behaviors may be more salient than controlled motivations to abstain. The present study was also one of the first to show this relative importance of autonomy for pro-social and negative behaviors among teens.

Fifth, when looking at individual motivational profiles, in general adolescents were either high on controlled and autonomous motivations (high), moderate on both (moderate), low on both (low), or low on one and high on the other (mixed). This set of patterns was identified across all four behaviors. The high, low, and mixed profiles resemble patterns commonly found in prior person-centered studies of self-determination. The moderate group is typically not identified in other studies, but the fact that this group generally had better outcomes than the low group, but not as well off as the high and mixed groups, provides additional evidence of the somewhat linear relation between degree of autonomous motivation and adaptive outcomes. The present study was also one of the first to show these patterns for engagement in pro-social behaviors and abstention from negative behaviors. Again, this is additional evidence that similar motivational processes might be involved in both cases.

Sixth, in most cases, there were no differences between the high motivation group and the mixed group. This confirms prior research in suggesting that level of autonomous motivation is more critical than level of controlled motivation in predicting behavior, and that overall level of autonomous motivation may be more important than the relative level of autonomous to controlled motivation (e.g., Ullrich-French & Cox, 2009). These findings provide evidence for the importance of autonomous motivations in promoting abstinence from health-risk behaviors as well as for motivating pro-social engagement (Deci & Ryan, 2012; Weinstein & Ryan, 2010). Also, this

pattern of results might question the utility of using the relative autonomy index (RAI) as a measure of overall motivation, as the RAI focuses on the relative salience of controlled versus autonomous when really it might simply be level of autonomous motivation that matters most. In other words, perhaps the "continuum" view of motivation is not as useful as a more dynamic, multidimensional approach that considers the relative roles of various motivations (Koestner & Losier, 2002; Ullrich-French & Cox, 2009).

Seventh, although similar patterns of findings were found across all four behaviors, the results for motivation to abstain from sex were somewhat distinctive. In particular, both variable-centered and person-centered analyses showed a potentially more important role for controlled motivations in the case of sexual behavior than for the other three behaviors. Sex was the only behavior for which autonomous and controlled motivations predicted behavior in variable-centered analyses, and the only one where the mixed group was high on controlled and low on autonomous motivations in the person-centered analyses. Perhaps this comes from the mixed messages youth in America receive about sexuality (Greydanus, Merrick, & Dodich, 2012), or the emphasis on sexual abstinence among conservative religious sectors of the population (Regnerus, 2007). Either way, shame and guilt may play more of a role in motivating abstinence from sex than in motivating other behaviors. It is important that future work continues to compare and contrast motivation processes across behaviors.

LIMITATIONS

The present study had a number of limitations. First, all data were self-reported. Although teens are arguably the best source of information for their own conscious motivations, future research employing self-determination theory on adolescent motivations should explore alternative measurement approaches, particularly for behavioral outcomes. Second, the data were correlational and cross-sectional, making it difficult to infer temporal ordering and causality. Future research should examine adolescent motivations using experimental or longitudinal methods. Third, it is impossible to know for certain whether youth filled out the youth portion of the survey, parents filled out the parent portion, or the same person filled out both. However, it seems unlikely that this would have occurred frequently enough to significantly impact the pattern of results.

CONCLUSIONS AND IMPLICATIONS

The present study used a self-determination theory framework for examining adolescents' motivations to engage in pro-social behaviors (volunteering and charitable donating) and abstain from health-risk behaviors (sex and marijuana use). We found three different levels at which individual variation in motivation can be examined, starting with a dispositional level of motivation (some people are generally more autonomously motivated than others), then going to a behavior domain level (individuals vary in terms of how autonomously motivated they are for particular types of behaviors, such as pro-social vs. health-risk behaviors), then down to a behavior-specific level (individuals vary in terms of how autonomously motivated they are to engage in a particular behavior). In other words, the extent to which people are similarly or differentially motivated depends on the level of analysis, from general traits to types of behaviors to particular behaviors.

Additionally, we discovered that autonomous motivations are relatively more important to pro-social engagement and health-risk abstinence than controlled motivations. In other words, it is not merely how much teens are motivated that matters, but also the kinds of reasons they have for engaging in or abstaining from behaviors. Most critical for predicting behavior seems to be the extent to which teens are engaging in pro-social behaviors or abstaining from health-risk behaviors because they want to, not because they are compelled to do so. The exception was that controlled motivation may also be important for motivating sexual abstinence.

The present results can inform applied work with adolescents, such as positive youth development efforts to promote pro-social engagement, as well as prevention and intervention efforts to reduce health-risk behaviors. For instance, parents, educators, and community leaders often rely on rewards, such as financial incentives, to promote positive behaviors (e.g., paying youth to get good grades). While such strategies may sometimes increase rates of behavior at least in the short term (Fryer, 2011), it may be more effective to emphasize moral values and sense of identity as means of autonomous motivation to promote more lasting behavior change. As an example, teens who volunteered at a soup kitchen learned to value community service and activism and internalize these behaviors as part of their identity (Youniss & Yates, 1997), and such early experiences can lead to lifelong commitment to the value of civic engagement (McAdams, 1988).

Similarly, often with prevention and intervention programs the emphasis is on heavy use of punishments and induction of fear or guilt. Unfortunately, not only are such approaches typically less effective, but they can actually make things worse (i.e., involvement in some programs such as DARE actually increases health-risk behaviors; Lilienfeld, 2007). This accords with Hoffman's (2000) suggestion that internalization of moral values in discipline situations is better facilitated by inductively helping children understand and appreciate reasons why it is best to avoid certain negative behaviors (e.g., hitting other children). In contrast, when adults try to keep youth from engaging in negative behaviors through assertion of power or withdrawal of love, it may cause excessive anxiety and discord in the relationship and hinder processes of values internalization (Grusec & Goodnow, 1994). Consistent with this, authoritative or democratic parenting is predictive of moral values being internalized (Hardy et al., 2008) and integrated into a

person's self-identity (Hardy, Bhattacharjee, Aquino, & Reed, 2010).

In short, this study helped elucidate adolescent motivations to engage in socially desirable behaviors and abstain from unhealthy behaviors. It is one of the first studies to look at motivations to engage in positive behaviors and motivations to abstain from negative behaviors in the same study, one of the first to examine these motivations among adolescents, and one of the few to explore multiple levels of motivational specificity. Thus, it provided a useful window into the nuances of different types of motivations (i.e., controlled and autonomous) across different domains of behavior (i.e., pro-social engagement and health-risk abstinence) at different levels of specificity (e.g., pro-social behavior more generally or volunteerism in particular). Hopefully, the pattern of findings will spur future research into the complexities of human motivation, particularly during adolescence, will help further theoretical developments in the field, and will inform applied work with youth.

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