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Adolescents' Civic Engagement and Alcohol Use: Longitudinal Evidence for Patterns of Engagement and Use in the Adult Lives of a British cohort

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Abstract

Participation in discretionary activities during adolescence may facilitate the development of social networks that recruit youth into adult civic life or provide risky contexts that promote alcohol problems. Using data from the 1970 British Cohort Study, latent class analysis was used to identify adolescents' patterns of civic engagement, alcohol use, and other out-of-school activities at age 16, and test longitudinal links with adult civic engagement and alcohol use at ages 26, 30, and 34. Three classes were identified for both genders. The latent class characterized by involvement in more activities was more likely to be civically engaged in adulthood. The class characterized by the most alcohol use in adolescence had the highest likelihood of adult alcohol use and problems. Results are discussed in light of the health risks associated with each latent class and potential interventions that could be tailored to adolescents based on their patterns of activities.

Keywords

adolescence; discretionary activities; civic engagement; alcohol use; latent class analysis; British Cohort Study

The framework of healthy youth development posits that youth are resources to be developed through opportunities, relationships, experiences, and support that aid in their growth as they become competent, functioning adults (Bernat & Resnick, 2006). Discretionary activities, defined here as activities outside of academics or work, are one facet of youth development that provide opportunities for growth in youths' lives by allowing adolescents to explore their values and worldviews as well as gain and practice civic skills and build social connections with broader society (Fredricks & Eccles, 2006; Larson, 2001). However, adolescents may also engage in activities during their free time,

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such as alcohol use, that can be risky for immediate and long-term health (e.g., Brown et al., 2008). These protective and risky activities play into healthy youth development by increasing or decreasing the likelihood of positive and negative outcomes. For example, different patterns of activity involvement are related to youth thriving (e.g., Linver, Roth, & Brooks-Gunn, 2009; Metzger, Crean, & Forbes-Jones, 2009), but alcohol use, despite its prevalence among high school students, is considered as a separate outcome from these identified patterns. We extend previous research by examining a variety of potentially protective or risky discretionary activities and include alcohol use as an activity itself, one that adolescents consider a viable use for their free time with youth potentially meeting up for the purpose of drinking.

Understanding how adolescents use their discretionary time is important insofar as many choices made during this period impact long-term pathways (Feinstein, Bynner, & Duckworth, 2006; Hardy, Pratt, Pancer, Olsen, & Lawford, 2011; Salmela-Aro & Schoon, 2009; Schoon & Cheng, 2011), which may have consequences for individuals as well as for society. Adult heavy drinkers vote less often and are less connected to their communities (Denny & Doyle, 2007; Lindstrom, 2005), patterns of behavior that may be apparent before adulthood. Yet, the long-term associations between adolescent patterns of activities and adult behaviors and the mechanisms explaining them are understudied. Youth involved in a variety of activities may be more likely to develop social networks that carry into adulthood. Alcohol use may be one of the many ways that they use their free time and we know that such use in adolescence is a risk factor for problems with alcohol in adulthood. On the other hand, an absence of activities or social networks in adolescence can lead to social disconnection in adulthood. Such disconnection may or may not be associated with alcohol problems. The current study seeks to elucidate links between patterns of adolescent activities and adult social connection through civic engagement and adult alcohol use and problems.

We examined the various ways British adolescents allocate their discretionary time (in civic activities, alcohol use, and other out-of-school activities) that are commonly available in adolescence. We then tested whether the ways in which adolescents combined these allocations of their free time predicted adult outcomes of civic engagement and alcohol use. Identifying precursory patterns in adolescence is important insofar as both civic engagement and alcohol use are associated with individual and societal well-being (Banaji, 2008; Miller, Levy, Spicer, & Taylor, 2006; Musick, Herzog, & House, 1999; NIAAA, 2003).

Activity Experiences During Adolescence

Adolescence is a crucial time period when youth build skills and connect with peers and mentors who can shape pathways to and outcomes in adulthood across a variety of cognitive, emotional, social, and civic domains. Civic engagement can serve as a protective experience that cultivates social networks that continue to recruit young people into civic life in adulthood (Flanagan, 2004; Kay & Bradbury, 2009; Read, 2010). For example, youth in the U.S. and Canada who volunteered or were involved in clubs while in secondary school had higher rates of political and community participation as adults, including higher rates of valuing of one’s community, social responsibility, and political and community

participation (Gallant, Smale, & Arai, 2010; Jennings & Stoker, 2004; McFarland & Thomas, 2006; Metz & Youniss, 2005).

Other discretionary activities can also contribute to healthy youth development, though some negative associations have been observed. Adolescent participants in sports, volunteering, religious services, or school-related activities (e.g., school government, pep club) completed more years of education six years after high school, had lower levels of social isolation, and had higher self-esteem as compared to nonparticipants, but sports participants also had higher rates of marijuana use (Barber, Eccles, & Stone, 2001; Eccles, Barber, Stone, & Hunt, 2003). Some activities, like alcohol use, are generally associated with negative outcomes such as academic problems, drunk driving accidents, and suicide ideation and attempts (Centers for Disease Control, 2003; NIAAA, 2003; Windle, Miller-Tutzauer, & Domenico, 1992). At the same time, alcohol use can be a means whereby college students explore identity (Dworkin, 2005) and experimentation with alcohol is common among adolescents in the U.S. with 70% reporting that they tried alcohol in the past year and 40% in the past 30 days (Johnston et al., 2012). In the current study, we examine activities that are common among adolescents and have been linked with both positive and negative adult outcomes. Insofar as moderate versus heavy alcohol use may be associated with different outcomes, we also include measures of monthly alcohol use, which can be considered more normative use, and heavy drinking, which can be more risky and potentially have more immediate and long-term negative consequences.

Combining Person-Centered and Variable-Centered Analyses

Prior research has clustered adolescents based on civic engagement or out-of-school activities and examined short-term personal and social outcomes. For example, Canadian adolescents involved in their communities and in politics in multiple ways (i.e., *activists*, *helpers*, *responders*) had higher rates of identity achievement, self-esteem, and optimism than the *uninvolved* (Pancer, Pratt, Hunsberger, & Alisat, 2007). U.S. adolescents who were *highly involved* in volunteer and other out-of-school activities (e.g., after-school clubs, arts and hobbies) or dedicated their time to a single activity (sports, religious groups, school groups) had higher scores on measures of healthy youth development (e.g., social well-being, school connectedness) and contribution to families and communities (e.g., leadership, helping) than the *uninvolved* profile; however, the *highly involved* were also more likely to drink than the *uninvolved* or single activity profiles (Linver et al., 2009; Zarrett, Fay, Li, Phelps, & Lerner, 2009). A study investigating engagement in leisure activities among South African adolescents (Caldwell et al., 2004) found that alcohol and tobacco use was higher among youth who were engaged in activities but were unmotivated and bored as compared to the youth who did not participate in activities or who participated in activities and were motivated and interested (Tibbits, 2009). Certain activity patterns were consistently identified across these studies: an uninvolved group who participated very little in activities, a sports-only group (when sports were included among the measured activities), and a highly involved group who had high rates of participation in many different activities. In addition, with only one exception (which examined motivations in addition to behaviors; Tibbits, 2009), more highly involved profiles tended to have better personal and social

outcomes but also to have more substance use (Linver et al., 2009; Pancer et al., 2007; Zarrett et al., 2009).

The Current Study

The current study extended prior work by explicitly focusing on adolescents' simultaneous participation in a multitude of discretionary activities. By examining patterns of discretionary activities rather than single activities, we may see a richer picture of the ways that adolescents spend their free time. Using such patterns to predict adult behaviors should deepen our understanding of the developmental trajectories associated with adolescents' choices.

Hypotheses

There were two aims for the current study. First, drawing from a national longitudinal sample of British adolescents, we described patterns in which adolescents allocate their free time by combining civic engagement, alcohol use, and other out-of-school activities. Based on prior research, we hypothesized that three classes would be identified – uninvolved, sports-only, and highly-involved. Second, we tested whether the activity patterns longitudinally predicted adult civic engagement and alcohol use and problems. We hypothesized that youth classified as highly-involved would have higher rates of civic engagement as well as higher rates of alcohol use in adulthood compared to youth classified as uninvolved or involved only in sports. We expected that, once involved in civic affairs as an adolescent, they would maintain that community involvement into adulthood. Based on other work showing that alcohol use is common among adolescents who are involved in many different activities, we reasoned that the availability of alcohol at social events would make its use a norm that the highly involved group would carry into adulthood. We hypothesized that the sports-only group would have higher rates of alcohol problems in adulthood compared to the highly involved due to the link between sports and drinking (e.g., Eccles & Barber, 1999), but we have no *a priori* hypotheses about their adult civic engagement. Those classified as uninvolved were hypothesized to have low rates of adult civic engagement, but we had no *a priori* hypotheses about their alcohol use and problems. They may be less likely to drink from lack of opportunity or exposure or more likely to have alcohol problems if their low involvement is a sign of maladaptive behavior. Figure 1 displays the hypothesized adolescent patterns of discretionary activity and the directional associations with adult civic engagement and alcohol use.

Method

Participants

The 1970 British Cohort Study (BCS70) is an ongoing national longitudinal study following a cohort of people from their births to the present (98% of those born during one week in 1970, $N = 17\ 287$; Chamberlain & Chamberlain, 2008; Ferri, Bynner, & Wadsworth, 2003; Plewis, Calderwood, Hawkes, & Nathan, 2004). Follow-up data were collected from respondents from England, Scotland and Wales at ages 5, 10, 16, 26, 30, 34, and 38 (Butler & Bynner, 2008a, 2008b; Butler, Dowling, & Osborn, 2008; Bynner, 2008; University of

London, 2008a, 2008b, 2008c). The current analytic sample is limited to participants who provided data for at least one wave at ages 16, 26, 30, or 34. A total of 7 002 females (50%) and 7 023 males were included.

Measures

Civic engagement, age 16—To assess civic engagement, adolescents were asked how often they did the following in their spare time: (a) attend a meeting or *political club*, and (b) *volunteer* or community work (Feinstein, Bynner, & Duckworth, 2005), with response options coded as 1 = *no* or 2 = *yes* for each item.

Alcohol use, age 16—*Monthly alcohol use* measured adolescents' frequency of alcohol use in the past year, coded as 1 = *no* (never or only on special occasions) and 2 = *yes* (once a month or more). *Heavy drinking* measured whether the adolescent had consumed 4 or more drinks in a row in the previous two weeks: 1 = *no*, 2 = *yes*.

Other out-of-school activities, age 16—Other out-of-school activities assessed how often adolescents did various activities in their spare time (Sacker & Cable, 2005), grouped into categories by activity content. *Socializing* (e.g., Have friends around to my house; Go to a friend's house), *sports* (e.g., Play sports; Go to dance classes), and *hobbies* and crafts (e.g., Draw or paint for fun; Play a musical instrument) were coded as 1 = *low participation* (once a week or less) and 2 = *high participation* (more than once a week). *Religious services* attendance was measured by one item, coded to 1 = *low attendance* (once or twice a month or less) and 2 = *high attendance* (once a week or more).

Civic engagement, adult waves—At ages 26, 30, and 34, participants' *political interest* was assessed (Deary, Batty, & Gale, 2008; Denny & Doyle, 2008), coded as 0 = *low political interest* (little or no interest) and 1 = *high political interest* (moderate to high interest). *Voting* in the 1997 and 2001 general elections was assessed at ages 30 (in 2000) and 34 (in 2004), respectively; coded 0 = *no* and 1 = *yes* (Deary et al., 2008; Denny & Doyle, 2007).

At age 30, *organizational membership* reflected if a person was ever part of any organization such as political parties, environmental charities, and voluntary groups (Denny & Doyle, 2008; Feinstein et al., 2006; Paterson, 2008). *Union membership* reflected current membership in a Trade Union or Staff Association (Arulampalam & Booth, 2000; Paterson, 2008). Both were coded as 0 = *no* and 1 = *yes*.

At age 34, *civic action* was measured by four items asking whether participants had ever (a) attended a public meeting or rally, (b) taken part in a public demonstration or protest, (c) signed a petition, or (d) contacted a government official (Deary et al., 2008), coded as 0 = *no* (no to all four items) and 1 = *yes* (yes to any of the four items). *Social trust* measured how much participants trusted people in their local area, coded 0 = *low social trust* (little or no trust) and 1 = *high social trust* (moderate to high trust).

Alcohol use, adult waves—At ages 26, 30, and 34, participants reported on the number of *units* of alcohol they had consumed in the past week. At ages 26 and 34, participants were

measured on their *monthly alcohol use*, that is, how often they had an alcohol drink of any kind, coded as 0 = *no* (never or only on special occasions) and 1 = *yes* (once a month or more). At age 34, problem drinking was assessed using the CAGE (Mayfield, McLeod, & Hall, 1974; Smart, Adlaf, & Knoke, 1991) for *lifetime* and *annual* problems due to alcohol use (e.g., ever felt bad or guilty about your drinking). Although it does not provide a clinical diagnosis, the CAGE is a widely used screening tool for alcohol dependence (Bisson, Nadeau, & Demers, 1999). Participants who answered yes to 1 or more of 4 CAGE questions were coded 1 (*Problem drinking)* with all other participants coded as 0 (*No problem drinking*).

Plan of Analysis

Multiple imputation using the EM algorithm (Graham, 2009) was conducted prior to analyses because of missing data on distal outcomes (Tan, Lanza, & Wagner, 2011), which would otherwise exclude cases from the dataset. Data were assumed to be missing at random and multiple imputation was conducted using SAS PROC MI. Multiple imputation was used rather than complete case analysis (i.e., listwise deletion) to (a) preserve the population parameters and distributions of the whole dataset and (b) prevent the loss of statistical power (Graham, Cumsille, & Elek-Fisk, 2003). Analyses were conducted on 40 imputed datasets and results were averaged across datasets. Due to gender differences in volunteering, sports, and alcohol use (Caspersen, Pereira, & Curran, 2000; Johnston, O'Malley, Bachman, & Schulenberg, 2012; Lopez et al., 2006), latent class and distal outcome analyses were conducted separately by gender.

Latent Class Analysis (LCA, Collins & Lanza, 2010), a technique that describes differences between classes of people within a population based on individual characteristics, was utilized to examine adolescents' patterns of discretionary activities. LCA models with two, three, four, and five latent classes were compared for each gender. The best fitting model was determined through examination of a variety of fit statistics and judgments about parsimony (a smaller number of classes), interpretability (the item-response probabilities clearly distinguished one group from another), and stability (the number of models that converged on the same solution using 100 random starting values with at least 80% of models converging). Better fits were indicated by a lower likelihood-ratio G^2 statistic, Akaike's information criterion (AIC, Akaike, 1974), and Bayesian information criterion (BIC, Schwarz, 1978). When these indicators were contraindicated, the model with the smallest BIC value was selected. Although not recommended as a tool for model selection, we also examined entropy which summarizes the certainty of classification across individuals. Values closer to one indicate higher certainty and values closer to zero indicate lower certainty (Collins & Lanza, 2010). Models were estimated using SAS PROC LCA.

Two sets of parameters were estimated from the best fitting models and were used to describe the patterns of discretionary activities identified: class membership probabilities and item-response probabilities (Collins & Lanza, 2010). *Class membership probability* is the probability that a person is a member of a specific discrete class with a higher likelihood indicating that she or he is more likely to be in that class. Participants were classified into the group in which they had the highest probability of being a member. *Item-response*

probability is the probability of endorsing a specific item taking class membership into account. Item-response probabilities range from 0 to 1, with higher than .5 representing a greater likelihood, and lower than .5 representing a lower likelihood of responding affirmatively to the item. Contrasts between the groups based on their item-response probabilities (e.g., did one group have a stronger likelihood of reporting a specific activity versus another group that was unlikely to report that activity) were used to name the groups.

Distal outcomes (i.e., civic engagement and alcohol use and problems in adulthood) were predicted by including each outcome measure as a covariate in the LCA models and taking uncertainty related to class membership into account (Lanza, Tan, & Bray, 2011). This technique has been shown to produce less biased estimates than techniques in which participants are assigned to a latent class with outcome analyses conducted in a separate step. SAS PROC LCA and a corresponding macro were utilized in analyses and distal outcomes were included as covariates in the LCA models using logistic regression for binary outcomes and ordinary least squares regression for continuous outcomes. Known marginal distributions were used to calculate the probabilities for each binary outcome and the mean for each continuous outcome.

Results

Descriptive Statistics

Descriptive statistics of adolescent civic engagement, alcohol use, and other out-of-school activities are displayed in Table 1. Political club involvement was the least common activity with engagement by less than one-tenth of females and males. Volunteering was more common but still low with over one-fifth of females and almost one-fifth of males participating. Two-thirds of females reported monthly alcohol use and almost a third engaged in heavy drinking. Among males, almost three-fourths used alcohol monthly and over one-third reported heavy drinking. More than two-thirds of females and males engaged in socializing, and two-fifths of females and two-thirds of males participated in sports. Adolescent females and males were significantly different in their endorsement of all activities except for socializing (t values ranged from ±2.41 to 16.39, $p < .05$).

Adult civic engagement and alcohol use measures are shown in Table 2. Political interest was moderately endorsed by about one-quarter of females and two-fifth of males at ages 26 and 30 and even higher rates of endorsement were observed at age 34. Almost two-thirds of females and males endorsed voting at ages 30 and 34. Social trust at age 34 was the most highly endorsed civic indicator with almost three-fourths of females and males reporting high social trust. Organizational and union memberships were least common with less than one-fourth of people participating at age 30. Alcohol use was common in adulthood with more than three-fourths of females and males reporting monthly alcohol use at ages 26 and 34. Adult females and males were significantly different in their endorsement of all outcomes except for voting at age 34 (t values ranged from ±3.91 to 43.52, $p < .001$).

Model Selection for Latent Class Analysis

The LCA models for each number of classes, averaged across the 40 imputed datasets, are shown in Table 3. The three-class model (in bold) was selected as the best fitting model for both genders because it had the smallest BIC value and was more parsimonious than the four-class model. Incremental decreases in the AIC and BIC up to the three-class model suggested improvement in fit, whereas the BIC increased between the three- and four-class solutions. Moreover, the three-class model was clearly distinguishable and interpretable. The entropy values indicated that the certainty in classification was similar across different numbers of latent classes. Thus, we relied on the fit statistics, which combined with the interpretability and the stability across the 100 random starting values, provided consistent evidence that the three-class model represented the best overall fit. The models were fit without covariates to accommodate each distal outcome but additional tests with covariates of family social class, family structure, academic test performance, and delinquency indicated that the three-class solution is the best model fit for both females and males (results not shown).

Latent Classes for Females and Males

The latent classes of females and males correspond to groups of people characterized by their patterns of discretionary activities. The affirmative item-response probabilities for each class, displayed in Table 4 and plotted in Figures 2 and 3, provide information on how to interpret and label each class. The first class, for both females and males, was labeled *Inactive* because they are characterized by a low probability of engagement in all activities, aside from socializing and sports, and they had the lowest rates of socializing and sports relative to the other classes. The second latent class for females was comprised of those who were likely to report monthly alcohol use (.93), heavy drinking (.60), and socializing (.81), but unlikely to report the civic engagement or remaining out-of-school activities. This class was labeled *Drinking-Social-Active.* The second latent class of males was also comprised of people who were likely to report monthly alcohol use (.94), heavy drinking (.61), and socializing (.79), as well as sports (.61), but unlikely to report the civic engagement or remaining out-of-school activities. This class was labeled *Drinking-Social-Sports-Active.* For both females and males, the third latent class was labeled *Multi-Active* and was characterized by the highest probability of reporting engagement in the civic activities, sports, hobbies, and religious services relative to the other classes as well as high probabilities of reporting monthly alcohol use and socializing.

The class membership probabilities, which show the distribution of people across the classes, are shown in Table 4. Thirty-seven percent of females and 40% of males were in the Inactive class. Among females, 40% were in the Drinking-Social Active class and among males, 36% were in the Drinking-Social-Sports Active class. The remaining 23% of females and 22% of males were classified in the Multi-Active class.

Predicting Civic Engagement and Alcohol Use in Adulthood

Sixteen models each for females and males were tested to calculate the estimated probabilities of participants engaging in each adult civic engagement and alcohol use outcome as a function of their adolescent discretionary activity patterns (Table 5). Beta

coefficient estimates from the LCA models were used to calculate the estimated probabilities of engaging in each behavior for the binary outcomes and the estimated mean for each continuous outcome. Overall differences in classes were indicated by the change in twice the log-likelihood value.

Females from the Multi-Active class had higher probabilities of endorsing political interest, being organizational members, voting, and engaging in civic action compared to their Drinking-Social Active and Inactive peers. The Inactive and Multi-Active classes consumed fewer units of alcohol and had lower probabilities of alcohol problems in adulthood than the Drinking-Social Active class. The Inactive class had lower probabilities of engaging in monthly alcohol use at ages 26 and 34 compared to the Drinking-Social-Active and Multi-Active classes.

Males from the Multi-Active class had higher probabilities of endorsing political interest at ages 26 and 30 and belonging to organizations at age 30 than the Inactive and Drinking-Social-Sports-Active classes. The Inactive and Multi-Active classes consumed fewer units of alcohol, and had lower probabilities of alcohol problems in adulthood than the Drinking-Social-Sports-Active class. The Inactive class had lower probabilities of engaging in monthly alcohol use at ages 26 and 34 compared to the Drinking-Social-Sports-Active class.

Discussion

Latent Classes of Discretionary Activity Involvement

Three classes of adolescents were found for both females and males: the Inactive classes who were characterized by a low probability of engagement in all activities, aside from socializing and sports and who had the lowest rates of socializing and sports relative to the other classes; the Drinking-Social-Active (females) and Drinking-Social-Sports-Active (males) classes who were characterized by a high likelihood of involvement in alcohol use, socializing, and, in the case of boys, sports, but who had low involvement in the other activities; and the Multi-Active classes who had the highest probabilities of engaging in civic activities, sports, hobbies, and religious services relative to the other classes as well as high probabilities of reporting monthly alcohol use and socializing. The Inactive and Multi-Active classes identified in the current study are similar to those identified in previous person-centered work (Linver et al., 2009; Pancer et al., 2007; Zarrett et al., 2009). The Inactive classes were relatively uninvolved in discretionary activities and Multi-Active classes engaged in a wide range of activities, though the levels varied between females and males. Despite previous research on the protective benefits of civic engagement in predicting alcohol use (e.g., Barber et al., 2001), there was no group that reported both high involvement in civic engagement and no involvement in alcohol use. Perhaps our study did not find a high civic-low drinkers group because our data utilized British participants and previous studies were conducted in the U.S. where the drinking age is older than that in Britain.

Gender Differences

We did not directly test gender differences because previous work and preliminary analyses indicated differences between females and males on all discretionary activities except socializing. There were notable differences, however, in the activity patterns. Consistent with other work, females were more involved than their male peers in volunteer work (Feinstein et al., 2005). However, our study also revealed that there also was a group of males who engaged in volunteer work along with other activities, a finding that could only be uncovered by person-centered analyses examining patterns of activities rather than levels of single activities. Perhaps boys who volunteered were more likely to be involved in activities in general, which would be consistent with a genetic basis for involvement (Fowler, Baker, & Dawes, 2008). Girls were less active in sports and less likely to use alcohol than boys and these activities figured less prominently into their classes. Girls may have had fewer opportunities to engage in these pursuits or may have attached less value to sports or to alcohol use. Despite the differences between females and males, the pattern of latent classes predicting adult outcomes was fairly similar between the two genders.

Predicting Civic Engagement and Alcohol Use in Adulthood

Longitudinal analyses predicting distal outcomes showed that adolescents who were Multi-Active, compared to the other classes, had higher probabilities of being civically engaged as adults, including joining organizations, voting and taking other civic actions, and being interested in political issues. These findings have added a more diverse array of civic outcomes to earlier studies and confirmed that pathways to adult civic engagement begin with civic experiences in adolescence (Feinstein et al., 2006; Hanks & Eckland, 1978; Jennings & Stoker, 2004). Notably, only the Multi-Active classes had exhibited even moderate levels of civic engagement in adolescence. This is important in that it suggests that it is not any discretionary activities during adolescence (e.g., sports, socializing) but rather specific experiences in the civic domain that lay the foundation for long-term civic patterns. Perhaps the social networks established in these early civic experiences increased the likelihood of recruitment into later civic life (Verba, Schlozman, & Brady, 1995) or perhaps youth learn civic skills and competencies that carry into adulthood (Flanagan, 2003). Selection effects, for example due to sociability or enduring genetic differences between people (Son & Wilson, 2010), may account for some observed links between adolescent free time activity and subsequent civic involvement, but quasi-experimental studies of mandated volunteering also show that an ethic of service is gained from involvement, even among initially less motivated youth (Metz & Youniss, 2005). Further investigation of the underlying mechanisms is needed, especially in light of the lower mortality and depression rates and better cognitive functioning associated with adult civic engagement (Harris & Thoresen, 2005; Morrow-Howell, Hinterlong, Rozario, & Tang, 2003; Musick et al., 1999).

In addition to the health benefits of civic engagement, those in the Multi-Active classes consumed fewer alcohol units, and had lower probabilities of alcohol problems than their Drinking-Social-Active and Drinking-Social-Sports-Active counterparts. Multi-Active people may consume alcohol in social contexts where moderate levels of consumption are the norm. This behavioral pattern may have been established earlier in life: Even in adolescence, the Multi-Active group had lower rates of monthly alcohol use and heavy

drinking. The protective role of civic engagement in relation to alcohol use has been documented in previous research (e.g., Barber et al., 2001). The current study suggests that for highly involved youth the protective aspect of civic engagement comes from moderation of alcohol use, rather than abstinence. Adolescents who are engaged in a variety of activities may be more experimental in their approach; thus, moderate alcohol use may fit with their general behavioral pattern. Further reducing adolescent drinking among these youth may be effectively communicated through harm reduction strategies that focus on what impact their drinking may have on the community or on their involvement in other activities.

The Drinking-Social-Active and Drinking-Social-Sports-Active classes may be at highest risk for negative health and well-being in adulthood given their higher probabilities of alcohol problems and lower probabilities of civic engagement. As these classes had almost universal engagement in monthly alcohol use and nearly two-thirds engaged in heavy drinking in adolescence, our results suggest that a lack or a perception of a lack of other activity opportunities or encouragement to explore various activities may already exist at age 16. Further work towards understanding why these adolescents are not involved in many other activities would inform the development of intervention resources to reduce risky heavy drinking among these youth. Furthermore, the socializing and sports these youth were involved in did not translate into active community engagement in adulthood as measured by our study. Social networks that carry into other adult behaviors would be another important area of study to provide a clearer picture of this potentially at-risk group. Although altering socializing may be difficult because it is an unstructured activity, sports activities that include an emphasis on community or giving adolescents more autonomy and responsibility may help develop civic skills that will benefit these youth as well as their society. Countering the heavy drinking culture that often accompanies sports is another potential avenue for reducing alcohol problems. This strategy would likely reduce the substantial costs associated with such behavior. A dual-pronged approach of reducing risky behaviors and promoting protective factors, which is considered the most effective strategy (Bernat & Resnick, 2006), may help correct some of the long-term negative health outcomes observed among the Drinking-Social-Active and Drinking-Social-Sports-Active groups.

Despite the lower probabilities of alcohol use and alcohol problems among the Inactive classes, these adolescents are still at risk for poor health in adulthood given their limited civic engagement. Low civic engagement in adolescence and a lower probability of engagement in adulthood suggests that these classes are on a trajectory for limited civic participation through their lives. Given the importance of adult civic involvement for better cognitive function and lower mortality in adulthood (Harris & Thoresen, 2005; Morrow-Howell et al., 2003; Musick et al., 1999), people with low civic trajectories may be at risk for negative health into their later adult years. In addition, the health of a society may be at risk without the participation of its citizens (Banaji, 2008; Smith, 1999). Future work uncovering why these people limit their engagement in both adolescence and adulthood as well as ways to create activities that attract less engaged youth and promote their long-term civic development is essential for individual and societal well-being.

Historical Context

Although our study can generalize somewhat to contemporary adolescents given the stability in activities offered in schools, there are a few notable historical changes. Civic engagement rates in Britain have declined over time. The 1983 voting rate in Britain for 18-to-34-year-olds was 76% compared to recent general elections of 55% (Office for National Statistics, 2011). Furthermore, declining rates of membership in voluntary and community organizations in recent decades have been noted (Bynner, 2005). However, recent volunteer rates in Britain are higher than in previous decades. Compared to 23.8% of females and 18.5% of males observed in our sample, a 2005 sample revealed that 63% of 16- to 19-year-olds volunteered at least once in the past year (Rochester, 2006). Recent policy in Britain has focused on increasing youth volunteering including service learning in secondary schools and the creation of volunteer programs (e.g., Millennium Volunteers; Stanley, 2004). Similarly, volunteering rates increased throughout the 1990s and 2000s in the U.S. (Lopez et al., 2006), which has been attributed to the introduction of mandatory volunteer service requirements for high school graduation in some cities and states and the importance of volunteer work for higher education applications (Andolina et al., 2002; Marcelo, 2007). While concerns that there would be negative effects of mandatory service have not born out (Henderson et al., 2007) and positive outcomes such as increased intentions to be civically engaged and higher rates of voting in young adulthood have been observed (Hart et al., 2007; Metz & Youniss, 2005), more longitudinal work is needed before speculating on what implications mandatory service might have for other forms of adult civic engagement.

In addition to increased volunteering, rates of heavy drinking have increased over time. In 1986, 32% of girls and 37% of boys in our sample participated in heavy drinking, whereas 55% of girls and 52% of boys in Britain reported an episode of heavy drinking in 2007 (Hibell et al., 2009). Monthly alcohol use appears to have remained stable over time, though the measures are somewhat different. Despite these historical changes, other research using cohorts from 1986 to contemporary time indicate that patterns of adolescent discretionary activities remain stable over time (Finlay & Flanagan, 2012).

Limitations and Future Directions

As with any study there were limitations to the current analyses. First, although we cast a wide net to capture diverse discretionary activities, many other discretionary activities that we were unable to include, such as academic clubs and performing arts, may be important. In addition, activities may take place during school time as well as during non-school time (e.g., a school-based service learning project versus afterschool community volunteering) and future work teasing apart whether these diverse settings affect patterns of adolescent activity engagement is warranted. Second, work and work-like activities such as school and paid employment were not studied; these provide similar developmental opportunities such as socializing, developing skills, or building social networks. Understanding the skills adolescents learn in various activity and work settings as well as the transference of these skills from one setting to another would add to our understanding of adolescent development (see Zimmer-Gembeck & Mortimer, 2006 for a review). Third, the motivations behind participating in discretionary activities were not examined. Finally, we were not able to capture all types of adult civic engagement (e.g., volunteering) and some people may have

been restricted from certain types of engagement (e.g., not all occupations have unions). Future work examining additional civic attitudes and behaviors may help address these limitations.

Conclusions

The strengths of our study include (a) a focus on diverse discretionary activities that have rarely been examined together or explored through person-centered analyses, (b) the use of a nationally representative sample of 16-year-old British adolescents, and (c) a longitudinal examination of combinations of discretionary activities predicting adult civic engagement and alcohol use into their 30s. Our longitudinal results suggest that the Drinking-Social-Active and Drinking-Social-Sports-Active classes may be at risk for negative health outcomes because of their higher likelihood of alcohol problems and lower likelihood of civic engagement. Underlying processes such as personality differences, the development of different social networks, and diverse adolescent experiences that influence individuals' developmental trajectories are speculated to explain the results of the current study. Whether these classes of youth differ on other health, work, or relationship outcomes is a potential avenue for future research.

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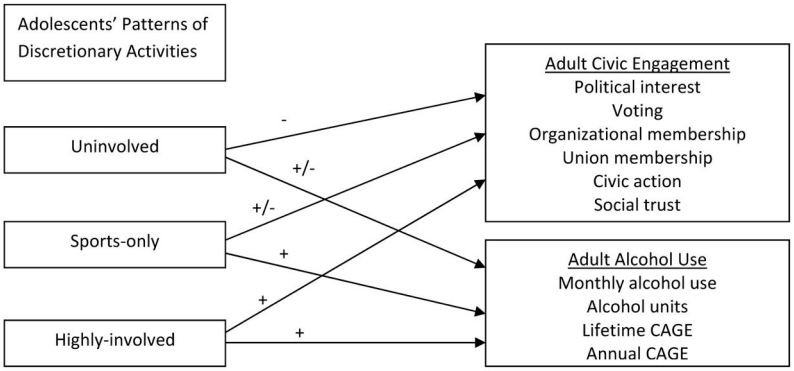

Figure 1.

Conceptual model of adolescents' patterns of discretionary activities predicting adult civic engagement and alcohol use.

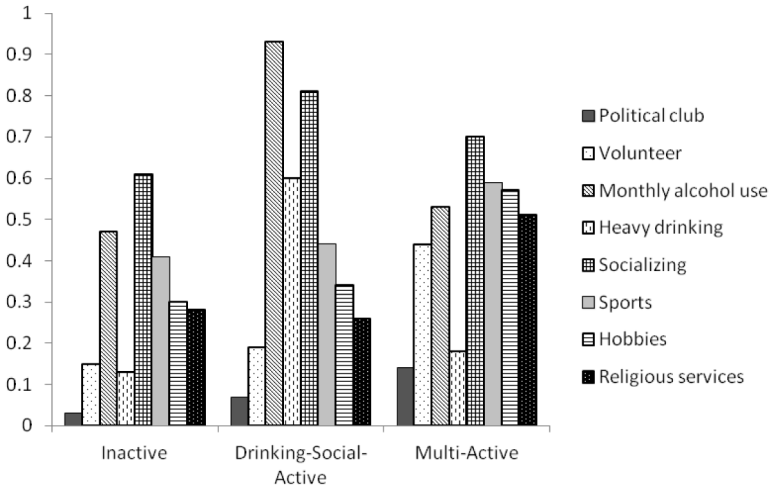

Figure 2.

Item-response probabilities of discretionary activity involvement at age 16 among British females.

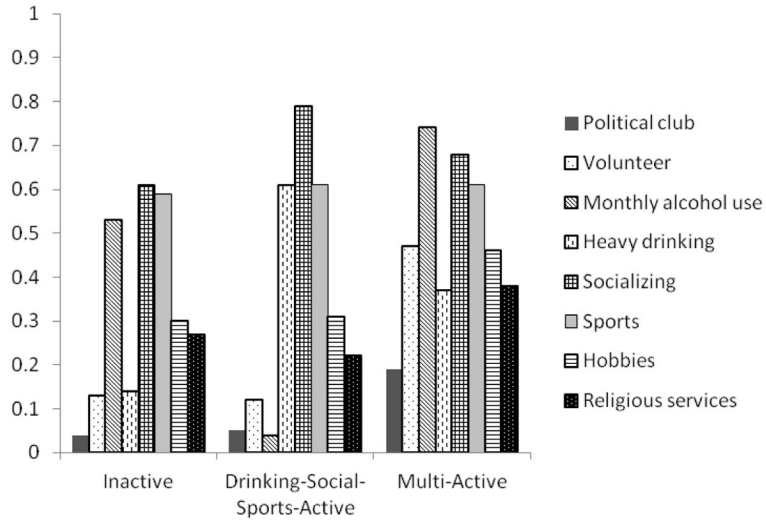

Figure 3.

Item-response probabilities of discretionary activity involvement at age 16 among British males.

Table 1

Descriptive Statistics of Civic Engagement, Alcohol Use, and Other Out-of-School Activities at Age 16 Among British Females and Males

		Females (*n* = 7 002)	Males (*n* = 7 023)
Activity	**Label**	**Frequency (%)[a]**	**Frequency (%)[a]**
Civic engagement			
Political club	Yes	436 (6.2)	563 (8.0)
Volunteer	Yes	1592 (22.7)	1330 (18.9)
Alcohol use			
Monthly alcohol use	Yes	4603 (65.7)	5123 (73.0)
Heavy drinking	Yes	2226 (31.8)	2580 (36.7)
Other out-of-school			
Socializing	High	5034 (71.9)	4834 (68.8)
Sports	High	3022 (43.2)	4592 (65.4)
Hobbies	High	2673 (38.1)	2305 (32.8)
Religious services	High	2247 (32.1)	1823 (26.0)

Note. Participants were surveyed in 1986 at age 16.

[a]Number (%) of participants who indicated *yes* or *high* involvement for each activity.

Table 2

Descriptive Statistics of Civic Engagement and Alcohol Use Outcomes at Ages 26, 30, and 34 Among British Females and Males

		Females (n = 7 002)	Males (n = 7 023)
Activity	**Label**	**Frequency (%)[a]**	**Frequency (%)[a]**
Age 26 (1996)			
Political interest	High	1885 (26.9)	2875 (40.9)
Monthly alcohol use	Yes	5782 (82.6)	6367 (90.7)
Alcohol units	*M* (*SD*)	5.8 (9.7)	17.6 (16.0)
Age 30 (2000)			
Political interest	High	1891 (27.0)	2929 (41.7)
Voting	Yes	4481 (64.0)	4137 (58.9)
Organizational membership	Yes	1505 (21.5)	1108 (15.8)
Union membership	Yes	1176 (16.8)	1393 (19.8)
Alcohol units	*M* (*SD*)	7.7 (15.3)	26.0 (26.4)
Age 34 (2004)			
Political interest	High	2351 (33.6)	3455 (49.2)
Voting	Yes	4339 (62.0)	4214 (60.0)
Civic action	Yes	2008 (28.7)	1649 (23.5)
Social trust	High	5099 (72.8)	4850 (69.1)
Monthly alcohol use	Yes	5278 (75.4)	6163 (87.8)
Lifetime CAGE	Yes	2164 (30.9)	3296 (46.9)
Annual CAGE	Yes	1572 (22.5)	2454 (34.9)
Alcohol units	*M* (*SD*)	5.9 (9.8)	15.8 (15.8)

[a]Number (%) of participants who indicated *yes* or *high* involvement in each activity.

Table 3

Model Comparisons of Latent Class Analysis at Age 16 Among British Females and Males

Number of classes	G^2	*df*	AIC	BIC	Entropy
Females					
2	422	238	456	573	.37
3	**310**	**229**	**361**	**540**	**.36**
4	258	220	328	568	.39
5	Did not converge				
Males					
2	410	238	444	558	.31
3	**307**	**229**	**359**	**537**	**.31**
4	241	220	308	539	.35
5	Did not converge				

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

Table 4

Prevalence of Latent Classes and Item-Response Probabilities at age 16 Among British Females and Males

	Latent classes for females			Latent classes for males		
	Inactive	**Drinking-Social- Active**	**Multi- Active**	**Inactive**	**Drinking-Social- Sports-Active**	**Multi- Active**
Prevalence of latent class	.37	.40	.23	.40	.36	.22
Item-response probabilities						
Political club	.03	.07	.14	.04	.05	.19
Volunteer	.15	.19	.44	.12	.12	.47
Monthly alcohol use	.47	.93	.53	.53	.94	.74
Heavy drinking	.13	.60	.18	.14	.61	.37
Socializing	.61	.81	.70	.61	.79	.68
Sports	.41	.44	.59	.59	.61	.61
Hobbies	.30	.34	.57	.30	.31	.46
Religious services	.28	.26	.51	.27	.22	.38

Table 5

Probabilities of Civic Engagement and Alcohol Use Outcomes Among British 26-, 30-, and 34-Year-Old Females and Males

	Females				Males			
Probabilities	**Inactive**	**Drinking-Social Active**	**Multi- Active**	**Δ 2* LL[a]**	**Inactive**	**Sports-Drinking- Social Active**	**Multi- Active**	**Δ 2* LL[a]**
Age 26 (1996)								
Political interest	.25	.25	.41	20.60**	.38	.37	.51	15.78*
Monthly alcohol use	.76	.89	.83	70.24***	.83	.95	.91	76.22***
Alcohol units[b]	4.08	8.68	5.89	112.95***	11.23	20.52	15.57	205.71***
Age 30 (2000)								
Political interest	.25	.25	.40	19.08*	.37	.39	.52	17.64*
Voting	.65	.59	.72	30.14***	.60	.55	.65	9.52
Org. membership	.18	.18	.37	40.85***	.13	.13	.28	32.86***
Union membership	.16	.17	.19	2.76	.18	.20	.21	5.13
Alcohol units[b]	5.87	11.88	8.76	67.31***	18.13	28.58	24.71	123.31***
Age 34 (2004)								
Political interest	.33	.32	.46	18.81**	.46	.46	.57	12.00
Voting	.60	.59	.73	19.90**	.61	.58	.65	6.01
Civic action	.25	.28	.38	14.14*	.23	.24	.26	3.43
Social trust	.71	.72	.78	7.51	.68	.71	.73	5.07
Monthly alcohol use	.69	.81	.76	58.52***	.81	.93	.88	78.07***
Alcohol units[b]	4.62	8.28	5.04	85.61***	9.68	18.22	14.09	151.05***
Lifetime CAGE	.24	.38	.33	49.43***	.39	.54	.48	50.14***
Annual CAGE	.18	.29	.20	48.65***	.31	.42	.28	49.16***

[a] Δ 2*LL = Change in twice the log-likelihood.

[b] Mean number of alcohol units consumed.

* $p < .05$,

** $p < .01$,

*** $p < .001$.