

Emerging adults' self-identified peer crowd affiliations and college adjustment

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Abstract Crowd affiliations are integral to academic functioning and school adjustment during adolescence. However, less is known about crowd structures within institutions of higher education. The current study was designed to validate the College Peer Crowd Questionnaire (CPCQ), an instrument designed to assess college students' self-reported crowd identifications, and examine associations with academic and socioemotional problems that derail college success. Participants were 498 students at a small liberal arts college in the western United States (Mage = 20.08; SD = 1.38, range = 18–26). Confirmatory factor analysis showed that the peer crowd structure could best be described by four underlying crowd dimensions (i.e., social, athletic, scholastic and counterculture) and that the factor structure was invariant across gender and college standing. Using structural equation modeling, we also found that crowd identification was significantly correlated with indices of college adjustment and behaviors that jeopardize academic success. The results highlight the importance of crowd affiliations for college students' success and adjustment. The results also highlight that the CPCQ is a valid tool for researchers who undertake this research.

Keywords Peer crowds · Health risk behaviors · School adjustment · Emerging adulthood

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1 Introduction

It is well established in the literature that peer relationships play a critical role in college students' adjustment in the United States and in other parts of the world (Awang et al. 2014; Bernardo et al. 2016; Cuseo et al. 2007). There is a rich tradition of identifying student typologies in college. Early work into the sociology of education documented the variability of peer cultures and their role in academic development (Astin 1993; Brown 1969; Clark and Trow 1966; Hu et al. 2011; Kuh et al. 2000; Luo and Drake 2005).

Although this work is informative, it relies on a “bottom-up” approach to conceptualize peer student subgroups. In other words, researchers gather data on students' behaviors and traits, and using cluster analytic techniques identify types of students. It is not clear, therefore, whether students self-identify with these groups. In addition, research within this tradition has either been relatively “... silent about the characteristics of student peer groups and college outcomes.” (Kuh 1995, pp. 566), or has focused primarily on desirable outcomes. Indeed, as Kuh et al. (2000) acknowledge, “the information used to create the groups does not encompass the full range of contemporary college student behavior, such as partying, drinking, watching television, playing video games, and so forth.” (pp. 242). Accordingly, the present study sought to build on this work in two ways: (1) we relied on emerging adults' self-identified peer crowd affiliations; and (2) we examined a broad range of indices related to college students' academic adjustment.

The purpose of the present study was to further understanding of the form that peer crowd affiliations take in emerging adulthood and the role that students' self-identified crowd affiliations play in their adjustment to college. To this end, our first goal was to validate an instrument for assessing college students' self-reported crowd identifications, the College Peer Crowded Questionnaire (CPCQ). Hopmeyer and Medovoy (2017), using exploratory factor analysis (EFA) to examine the structure of the CPCQ, provided preliminary evidence that emerging adults' patterns of peer group identification were best conceptualized by four underlying dimensions that were labeled *social*, *athletic*, *scholastic*, and *counterculture*. We sought to test the generalizability and robustness of the factor solution that they identified, using a new sample of college students and confirmatory factor analysis (CFA). Indeed, it is well established in the literature that results obtained using EFA should be interpreted with caution, given that it is often difficult to replicate the results obtained using this analytic approach (Osborne and Fitzpatrick 2012). We also tested the generalizability of the CPCQ factor structure across sex and college standing (i.e., underclassman, upperclassman).

Having established the replicability and generalizability of the CPCQ, we tested the implications of students' self-reported crowd affiliations for their college adjustment in a nuanced way. College adjustment is a multifaceted construct, encompassing emotional and behavioral well-being (Baker and Siryk 1984; Gerdes and Mallinckrodt 1994). Moreover, positive college adjustment is integral to college completion and achievement (Gerdes and Mallinckrodt 1994; Yazedjian et al. 2008). In the current study, we focused on aspects of college adjustment that reflect

emotional well-being (i.e., loneliness, campus belongingness) and poor behavioral adaptation to academic demands (i.e., academic risk-related behaviors). Also examined were associations between crowd affiliation and risky behaviors that jeopardize academic success and completion (i.e., drug-, sex-, and alcohol-related risk behaviors; e.g., Arria et al. 2013; Musgrave-Marquart et al. 1997; Pascarella et al. 2007). The potential moderating role of gender and college standing were also explored, given some evidence that susceptibility to the influence of peer crowds may vary as a function of students' gender and age (Brown 1990; Doornwaard et al. 2012).

2 Theoretical framework

To provide the conceptual framework for our study, we relied on research on peer crowd affiliations in adolescence. It is well-established in the peer relations literature that, as individuals move from childhood through adolescence, the peer landscape becomes more complex. As adolescents become integrated into larger peer groups, social networks are restructured, incorporating different types of social groups—most notably friendship cliques and crowds (Brown et al. 1994). Large groups of peers, or “crowds,” are reputation-based groups that are defined by shared attributes such as behaviors, appearance, or attitudes (Brown et al. 1994). Self-identification with such crowds has been recognized as a critical factor in shaping adolescents' academic, emotional, and behavioral adjustment (Cross and Fletcher 2009).

A large body of literature in the United States, Europe and Asia shows that adolescents' crowd affiliations have important implications for their academic adjustment (e.g., Delsing et al. 2007; Sim and Yeo 2012). More recent research has sought to quantify these relations. For example, researchers have documented how common crowds within adolescent peer groups in the United States compare in terms of academic achievement and development (Brown 1989; Brown et al. 1993; Heaven et al. 2007; Stone and Brown 1999; Steinberg et al. 1996). Researchers have also documented more broadly the behavioral and psychological profiles associated with crowd membership. A consistent theme in these investigations is the risk associated with membership in crowds that are organized around deviant norms, aggression, and/or substance abuse (Cross and Fletcher 2009). Youths who are associated with these reputational groups are likely to encounter a wide variety of functioning problems, including problematic health-related behaviors, internalized distress, and diverse forms of antisocial behavior, as well as academic failure (e.g., Cross and Fletcher 2009; Sussman et al. 2007). Thus, youths' crowd affiliations may lead to a confluence of outcomes that support or derail academic success.

Given the central role that crowds play in adolescents' academic, behavioral, and mental well-being, we sought to consider the form that crowd-based affiliations take in college and the role these affiliations might play in explaining college-students' adjustment. A few researchers have identified peer crowd affiliations in a broad range of college environments in the United States, and their findings provide evidence supporting the focus of our study (Ashmore et al. 2002, 2007; Bonsu 2012;

Sessa 2007). However, much of the extant research focuses on very specific outcomes (e.g., alcohol or substance use), rather than college adjustment more broadly construed. Bonsu (2012), using a sample drawn from a public university in the southern United States, showed that college students' crowd affiliations in high school predicted substance use in college. Moving beyond college students' retrospective recall of their high school crowd affiliations, Sessa (2007) found that students at a large commuter college in the mid-west region of the United States, where a majority of students do not live on campus, also reported crowd identifications, and these identifications predicted their school adjustment. She examined the relationship of college students' drinking behaviors with concurrent crowd affiliation, using a subset of high school crowd labels (i.e., "populars," "normals," "brains," "jocks," "deviants," "loners"). She began by looking at the drinking behaviors ascribed to the peer subgroups. Results showed that students attributed different drinking norms to the peer subgroups. "Deviants" and "normals" were perceived as prototypical drinkers, drinking more frequently and in greater amounts than other students. In contrast, "brains" and "loners" were identified as non-drinkers. Next, she examined if students' self-reported crowd affiliations were correlated with their drinking behaviors. Students who self-identified as "jocks," "deviants" and "populars" reported higher frequency and amount of alcohol use than students affiliating with other peer crowds. Taken together the results suggest that students' normative beliefs about the college peer crowds mediated the relationship between their crowd affiliations and alcohol-related behaviors.

Studies by Ashmore et al. (2002, 2007) built on this work and identified peer crowd affiliations unique to a big public university in the eastern United States. They used common adolescent labels as a starting point, and then asked participants to confirm which crowds were present in college and to add labels for crowds which they thought were missing from the list. The college students refined the list provided by the researchers and identified a number of peer subgroups unique to college (e.g., "frat girl," "frat brother," "party animal," "brainiac," "goody-goody," and "dork"). Results showed that the crowd structure was best conceptualized along two primary dimensions: party-oriented versus academically-oriented. The researchers did not, however, explore whether college students' self-reported affiliations with party-oriented versus academically-oriented peer crowds were associated with their adjustment.

Hopmeyer and Medovoy (2017) extended these findings by examining the relation between self-reported peer crowd affiliations unique to college students and a broad range of adjustment indices. The participants in their study were 588 emerging adults at a small private liberal arts college in the western United States. Using exploratory factor analysis, they found that the peer crowd groups that the students identified were best described by four underlying crowd dimensions (i.e., *social*, *athletic*, *scholastic* and *counterculture*). The crowds loading on the *social* dimension reflected students' orientation toward the recreational and interpersonal aspects of collegiate life (e.g., "partier," "Greek"). The *athletic* factor was defined by participation in sports and fitness (e.g., "athlete," "jock"). The *scholastic* factor reflected students' identification with intellectual, cultural, political and

environmental pursuits (e.g., “foreign exchange,” “academic,” “ethnic”). Finally, the *counterculture* dimension reflected students’ identification with culturally and behaviorally deviant lifestyles (e.g., “slacker,” “druggystoner”). Regression analyses showed that *scholastic* and *athletic* affiliations predicted socio-emotional adjustment (i.e., low loneliness and high belongingness) and low risk-related behaviors (i.e., academic-, sexual-, drug- and alcohol-risk). Furthermore, while *social* affiliation predicted social-emotional adjustment, affiliation with the *counterculture* crowd predicted high levels of loneliness and low belongingness. The results highlighted the importance of crowd affiliations in emerging adulthood and their implications for college students’ adjustment.

Although the study by Hopmeyer and Medovoy (2017) offers a useful framework for understanding the role that peer subgroups play in students’ adjustment to college, the exploratory nature of their analyses raises the possibility that the crowd dimensions which they identified might not replicate. In addition, questions remain as to whether associations between crowd affiliation and adjustment are the same for men and women or change across development. Research with adolescents, which has examined the role that gender plays in moderating the relationship between crowd identification and problem behaviors, is equivocal. Several previous studies have found that the influence of crowd affiliations is stronger among girls than boys (e.g., Brown and Huang 1995). This pattern of findings has been attributed to girls’ heightened susceptibility to peer pressure. There is also some evidence from research in both the United States and the Netherlands that boys, more than girls, are susceptible to the influence of antisocial peers (e.g., Brown et al. 1986a, b; Delsing et al. 2007; Doornwaard et al. 2012). Given these findings, it seemed important to consider whether the pattern of relations between crowd identification and adjustment indices differed between males and females. We did not have a clear prediction about whether crowd affiliation would be a stronger correlate of adjustment for male or female college students.

The findings regarding age are more consistent across studies. There is both cross-sectional and longitudinal evidence that, as adolescents get older, crowd affiliation becomes a less salient determinant of their well-being (e.g., Bixenstine et al. 1976; Brown et al. 1986a; Collins and Thomas 1972). It would seem then that as individuals move through adolescence, they become less reliant on crowd affiliations to provide social and emotional support, foster friendships, and facilitate social interactions. Brown et al. (1986b) found a clear developmental shift in how individuals appraised their crowd affiliations; “Younger students’ satisfaction with the peer group’s ability to provide support, foster friendships, and facilitate social interaction contrasted with older students’ concerns about conformity and their confidence that friendships would thrive without peer group affiliations” (Brown et al. 1986b, pp. 93). College students may go through a similar process of reliance on peer crowd affiliations during the first years of college, and crowd identification may play a prominent role in their academic success and socioemotional adjustment. As students become more secure in their academic and social pursuits, crowd affiliation may become less central to their academic progress and well-being. We predicted that crowd affiliation would be a stronger correlate of adjustment for underclassman than upperclassmen.

To test these possibilities, we examined whether associations between students' crowd affiliation and their college adjustment were moderated by gender or college standing (i.e., underclassman, upperclassman).

The data for this project were collected at small private liberal arts college in the western United States. Although there is considerable variation among institutions of higher education in the United States and internationally, we felt that this type of residential environment was an ideal environment to intensively study peer crowd affiliations unique to emerging adulthood and their implications for students' academic adjustment. Indeed, liberal arts colleges provide students with peer-rich environments (Umbach and Kuh 2006). Also, given the recent increase in the number of liberal arts colleges in Europe and Asia (Klebnikov 2015; Redden 2013), we felt that the data would provide a useful conceptual framework for cross-cultural research.

2.1 Study hypotheses

We hypothesized that we would validate the factor structure identified by Hopmeyer and Medovoy (2017). Further, we hypothesized that the identified crowd dimensions would be invariant across participants' gender and college standing. Finally, we hypothesized that students' self-reported crowd identifications would be associated with their school adjustment and engagement in achievement-compromising risk behaviors. These associations were expected to be moderated by gender and college standing. We expected the effects to be stronger for underclassmen than for upperclassmen. We did not generate a priori hypotheses regarding the potential gender effects.

3 Methods

3.1 Participants and procedures

Participants were 498 college students ($M_{\text{age}} = 20.08$; $SD = 1.38$, range = 18–26). The majority of participants were female (70%). The ethnic breakdown of the sample (assessed via open-ended self-report) was 57.4% Caucasian, 17.7% Asian American, 9.6% African American, 5.8% Latino, and 9.5% other. Twenty-six point five percent were first-year students, 22.9% were second-year students, 28.5% were third-year students, and 22.1% were fourth-year students. First- and second-year students were identified as “underclassmen” ($n = 246$) and third- and fourth-year students were identified as “upperclassmen” ($n = 252$).

Participants were recruited from a small liberal arts college in an urban city in the western United States via email and social media. The students on this campus are racially and ethnically diverse, and the majority are from lower middle- to middle-class backgrounds (71% receive financial aid and 21% are Federal Pell Grant recipients). Nineteen percent of the students are first generation college students. Participants completed an anonymous online Qualtrics survey in exchange for extra

credit and the opportunity to win one of 16 \$25 gift cards. Approval for the study was obtained from the college's Institutional Review Board.

3.2 Measures

Self-report measures assessing students' demographics, risk-taking behaviors, emotional connection to peers and the campus community, and peer crowd identifications were administered.

3.2.1 Socio-demographics

Participants were asked to report their age, sex, academic class standing, and race/ethnicity. First- and second-year students were identified as "underclassmen," and third and fourth year students were identified as "upperclassmen."

3.2.2 Risk behaviors

Participants' risky academic-, sexual-, drug- and alcohol-related behaviors were assessed using an adapted version of the Reckless Behavior Questionnaire (RBQ, Teese and Bradley 2008). The 15-item questionnaire asks students to report the frequency with which they had engaged in certain behaviors over the course of the semester, grouped into four categories of risk behaviors: academic (e.g., "How many times during the past semester have you cheated on an exam or homework assignment?"), sexual (e.g., "How many times during the past semester have you had intercourse with a non-exclusive partner?"), drug (e.g., "How many times during the past semester have you taken a drug offered to you by a friend?"), and alcohol (e.g., "How many times in the past semester have you consumed alcohol to the point of physical illness?"). The response alternatives were 1 (*never*), 2 (1–2 *times*), 3 (3–4 *times*), 4 (5–6 *times*) and 5 (7+ *times*). For each participant, we generated an average score for academic-, sexual-, drug- and alcohol-risk by averaging their responses to the items that made up each subscale. The internal reliabilities of the subscales were as follows: $\alpha = .89$ for academic risk, $\alpha = .87$ for sexual risk, $\alpha = .80$ for drug risk, and $\alpha = .94$ for alcohol risk. The full list of items included in the RBQ are presented in "[Appendix 1: Risk and reckless behavior questionnaire](#)".

3.2.3 Loneliness

Participants completed the UCLA Loneliness Scale (Russell 1996), a frequently used and well-validated instrument assessing adults' feelings of loneliness. This self-report questionnaire includes 20 items that are designed to measure loneliness (e.g., "How often do you feel alone?") and social isolation (e.g., "How often do you feel isolated from others?"). Participants rated the frequency of each item on a scale ranging from 1 (*never*) to 5 (*always*). The nine positively worded items were reverse scored so that higher scores were indicative of greater loneliness. In the present study, the internal reliability of the questionnaire was $\alpha = .93$.

3.2.4 College belongingness

Participants completed the College Belongingness Questionnaire (Asher and Weeks 2014). This, well-validated, self-report questionnaire includes six items that measure students' feeling that they belong at their school (e.g., "I feel welcome at this school."). Participants rated the accuracy of each item on a 5-point Likert type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The one negatively worded item ("It's hard for me to fit in here.") was reverse scored so that higher scores were indicative of greater belongingness. In the present study, the internal reliability of the questionnaire was $\alpha = .90$.

3.2.5 College crowd identifications

We assessed students' self-reported peer crowd affiliations using the College Peer Crowd Questionnaire (CPCQ; Hopmeyer and Medovoy 2017). The CPCQ is similar in format to the Peer Crowd Questionnaire (PCQ; La Greca and Harrison 2005), an instrument designed to assess adolescents' peer crowd affiliations. Items on the CPCQ were generated by students, in two focus groups, following Brown's Social Type Interview Procedure (Brown 1989). The participants in the focus groups were students from research methods classes in the social sciences. The items on the CPCQ reflect the 16 crowds identified by the focus groups: "partier," "popular," "Greek," "loner," "druggy/stoner," "hipster," "slacker," "ethnic," "leader," "foreign exchange," "academic," "performing arts," "elites," "jocks," and "athletes". Participants were asked to indicate how strongly they identify with each of the peer crowds (e.g., "How strongly do you affiliate with the 'partier' crowd?") on a 5-point Likert type scale. A brief description of each crowd was provided.

4 Results

4.1 Overview of analyses

Data analyses were conducted in two stages. In the first stage, confirmatory factor analyses (CFAs) were employed to examine the factor structure of the College Peer Crowd Questionnaire (CPCQ). The analyses focused on whether: (a) the factor structure with the current sample replicated that found by Hopmeyer and Medovoy (2017), (b) the factor structure was invariant across participants' gender and class standing (i.e., underclassman and upperclassman), and (c) there were significant mean differences in crowd affiliations, or in the correlations between crowd affiliations, as a function of participants' gender or college standing. All analyses were conducted using full information maximum likelihood (Enders and Bandalos 2001) in MPLUS (Muthén and Muthén 1998–2007) and, therefore, data from all participants were included in the analyses. However, for some models estimated, a small number of participants had missing data that precluded including their data in the analysis (e.g., four participants did not report their gender, but did report their

college standing, allowing their data to be included in models testing for differences as a function of college standing, but not as a function of gender). Total *N*s for analyses ranged from 490 to 496. CFAs were estimated using the fixed factor method (Lee et al. 2011). Invariance across gender and year in college was tested using procedures outlined by Little (2013; see also Widaman and Reise 1997) and included testing configural invariance (i.e., all factor loadings when freely estimated are approximately similar across groups), weak invariance (i.e., the model fit is not significantly worse when factor loadings are fixed to be equal across groups), and strong invariance (i.e., the model fit is not significantly worse when factor loadings and the means of the manifest items are constrained to be equal across groups). Following suggestions by Little (2013), model fit was determined to be significantly degraded if the Comparative Fit Index (i.e., CFI) dropped by .01 or greater.

In the second stage of the data analysis, structural equation models (SEM) were estimated to determine: (a) relations among crowd affiliation, school adjustment, and risk behaviors, and (b) whether these relations differed as a function of participants' gender and college standing. Each model included the final measurement models extracted from the first stage of data analysis and either latent factors of the three school adjustment outcomes (i.e., loneliness in college, campus belongingness, and academic risk) or the three risky behavior outcomes (i.e., risky sexual behavior, risky alcohol-related behaviors, and risky drug-related behaviors). Item parceling (see Little 2013; Little et al. 2002) was used to create the latent loneliness and campus belonging variables with 6-to-7 items making up each of three loneliness parcels and two items each making up three campus belonging parcels. Subscale items were used separately as manifest indicators of the academic, sexual, alcohol, and drug risk latent factors. Multi-group SEM was used to test for differences in the relations between crowd affiliation and the outcome variables as a function of gender and college standing. All paths from crowd affiliations to the outcome variables were first estimated freely and then constrained to be equal across groups. A χ^2 difference test was used to determine whether constraining the parameters to be equal significantly reduced model fit, indicating the presence of at least one gender or college standing difference. Parameters were constrained to be equal across groups in the final models unless a significant difference was detected.

4.2 Confirmatory factor analyses

4.2.1 Initial CFA collapsed across gender and college standing

An initial CFA of the CPCQ was conducted using the entire sample (i.e., collapsed across gender and college standing) to determine whether a model derived from the exploratory factor analysis performed by Hopmeyer and Medovoy (2017) would adequately fit the current data. Based on Hopmeyer and Medovoy's analysis, four latent factors were estimated—*social*, *athletic*, *scholastic*, and *counterculture*. Items were set to load on the factor for which they had the highest loading. This initial model did not fit the data adequately, $\chi^2(84, N = 494) = 441.46, p < .001$, comparative fit index (CFI) = .80, root mean square error of approximation (RMSEA) = .093, standardized root mean square residual (SRMR) = .077. An

examination of the modification indices revealed that, despite loading significantly on the *social* crowd factor as hypothesized, the “loner” item also loaded on the *counterculture* crowd latent variable. This cross-loading is consistent with Hopmeyer and Medovoy (2017) who found that despite loading most substantially on the *social* factor, “loner” crowd affiliation also loaded on the *counterculture* crowd factor. Model fit was also improved by freeing seven error covariances between the items. This final model (see Fig. 1) provided an adequate fit to the data,

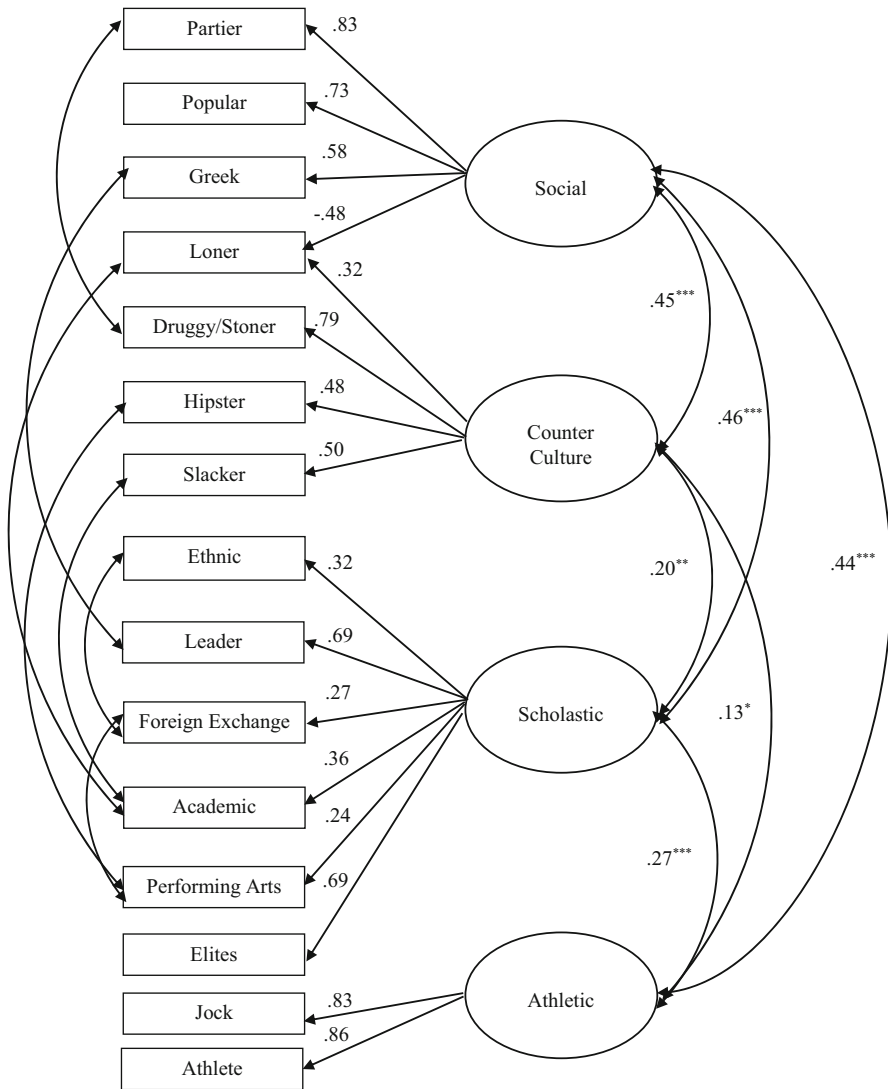


Fig. 1 Standardized factor loadings and correlations between latent factors estimated from a CFA of the PCQ. All factor loadings significant at $p < .001$. Standardized error covariances ranged from $-.21$ to $.36$, all $p < .001$. * $p < .05$; ** $p < .01$; *** $p < .001$

$\chi^2(76, N = 494) = 252.21, p < .001, CFI = .90, RMSEA = .069, SRMR = .057$. All items loaded on their respective factor(s) at $p < .001$, and correlations between crowds were positive and ranged from small to moderate in magnitude.

4.2.2 CFA by gender

To test for invariance in the CPCQ structure across gender, multi-group factor analyses were employed, in which CFAs were estimated separately for men and women. All error covariances and the one cross-loading were retained in these analyses. Successive models were tested reflecting increasingly stringent tests of factor invariance (i.e., configural, weak, and strong invariance). Of primary concern was whether models for which parameter estimates were increasingly set to be equal across men and women fit the data as well as the preceding, and therefore less stringent, model (i.e., $\Delta CFI < .01$, Little 2013). Fit indices are presented in Table 1.

The initial test of configural invariance (i.e., a model with no equality constraints across gender) fit the data well with the addition of an error covariance between the “elite” and “academic” items and between the “elite” and “loner” items. Configural invariance is demonstrated when the pattern of unstandardized factor loadings is roughly equivalent across groups despite being estimated freely. Across gender, almost all factor loadings were very similar, except for a .34 difference in the loading of the “performing arts” item on the *scholastic* factor. All factor loadings were significant at $p < .001$ with the exception that, for men, the loading of the “performing arts” item on the *scholastic* factor was nonsignificant and the loading of the “loner” item on the *counterculture* factor was nonsignificant. Weak invariance was tested by setting all factor loadings to be equal for men and women. The model continued to demonstrate adequate fit, and the decrement in CFI, .006, was less than .01, indicating that the model met the criteria for weak invariance across gender. Notably, all items loaded on their respective latent factor at $p < .001$ for men and women.

Table 1 Fit indices of models testing for factorial invariance across gender

Model	χ^2	<i>df</i>	CFI	SRMR	RMSEA	ΔCFI
Invariance across gender						
Configural invariance	307.77	148	.912	.06	.07	–
Weak invariance	330.06	160	.906	.07	.07	.006
Strong invariance ^a	348.16	169	.901	.07	.07	.005
Invariance across year in college						
Configural invariance	323.78	148	.903	.06	.07	–
Weak invariance	337.60	160	.902	.07	.07	.001
Strong invariance	342.55	169	.904	.07	.06	–.002

The *N* for the model testing invariance across gender was 490. The *N* for the model testing invariance across year in college was 494

^a Fit indices are reported after two intercepts were allowed to be freely estimated across gender

Strong invariance was tested by maintaining the equality constraints for the factor loadings and setting the intercepts of all manifest items equal across gender. The decrease in CFI for this model was .01, indicating that the model did not evidence strong invariance across gender. An examination of the modification indices suggested that allowing the intercepts for the “hipster” and “foreign exchange” items to be freely estimated improved model fit. That these two means were not equivalent for men and women weakens the evidence of strong invariance across gender. However, Little (2013) argues that when only a small number of indicators show invariance, and when there are several items loading on the latent factor, one might reasonably assume that the underlying latent factor is relatively invariant. In the current study, invariance was found for items loading on factors for which there were a number of indicators (i.e., four and six items for the *counterculture* and *scholastic* factors, respectively). Therefore, the equality constraints for the two items were relaxed. Women reported having greater affiliation with the “hipster” crowd than men (2.66 vs. 2.34, for women and men, respectively), and men reported greater affiliation with the “foreign exchange” crowd than women (1.78 vs. 1.46, for men and women, respectively). This final model adequately fit the data. The pattern of standardized coefficients was similar to those presented in Fig. 1.

Having established invariance of the factor structure of the CPCQ across gender, we examined whether there were mean gender differences in the latent crowd variables or gender differences in the correlations between the latent factors. Because the fixed factor method was used, the means of the latent factor for women represented the mean difference in the latent variable across gender. Men reported greater affiliation with the *athlete* latent factor than women ($M_{\text{difference}} = -.50$, $p < .001$) and greater affiliation with the *counterculture* latent factor ($M_{\text{difference}} = -.48$, $p < .001$). Constraining the covariances between the latent crowd factors to be equal across groups resulted in significantly worse model fit $\chi^2(6) = 23.86$, $p = .001$, signifying that at least one covariance differed across men and women. Follow-up analyses revealed that correlations were stronger for men than for women between the *social* and *athletic* latent factors, $\chi^2(1) = 14.41$, $p < .001$, *social* and *scholastic* latent factors, $\chi^2(1) = 12.14$, $p < .001$, *athletic* and *scholastic* latent factors, $\chi^2(1) = 12.82$, $p < .001$, and *athletic* and *counterculture* latent factors, $\chi^2(1) = 5.49$, $p = .02$. Indeed, for men, these correlations ranged from .29 to .77; for women, they ranged from $-.01$ to .31.

4.2.3 CFA by college standing

CFAs were next estimated to test for invariance of the CPCQ as a function of college standing (i.e., underclassmen vs. upperclassmen). All error covariances from the model testing for invariance across gender, and the one cross-loading, were retained in these analyses. Fit indices from these models are presented in Table 2.

Tests of configural invariance revealed that, across year in college, factor loadings were very similar, with the largest difference, .32, occurring for the “ethnic” item on the *counterculture* factor. All factor loadings were significant at $p \leq .007$. The CFA testing for weak invariance demonstrated adequate fit, and the

Table 2 Descriptive statistics and correlations between the outcome variables

	1	2	3	4	5	6
1. Drug risk	–					
2. Alcohol risk	.52**	–				
3. Sex risk	.37**	.45**	–			
4. Academic risk	.26**	.28**	.24**	–		
5. Loneliness	–.02	–.05	–.13**	.10	–	
6. Belongingness	–.01	.02	–.04	–.10	–.56**	–
<i>M</i> (<i>SD</i>)	1.80 (.94)	1.48 (.62)	1.79 (.89)	2.13 (.75)	2.60 (.60)	3.74 (.89)
Actual range	1–5	1–4.50	1–5	1–4.75	1–4.89	1–5

* $p < .05$; ** $p < .01$

decrement in CFI, .001, was less than .01, indicating that the model met the criteria for weak invariance across college standing. Notably, all items loaded on their respective latent factor at $p < .001$. A CFA testing for strong invariance was conducted next, allowing for college standing differences in the “hipster” and “foreign exchange” items. The CFI improved slightly, yielding support for strong invariance across year in college. The pattern of standardized coefficients was similar to those presented in Fig. 1.

Having established invariance of the factor structure of the CPCQ across year in college, we examined whether there were mean differences across college standing in the latent crowd variables or differences in the correlations between the latent factors. Upperclassmen reported greater affiliation with the *scholastic* crowd than underclassmen ($M_{\text{difference}} = .28$, $p = .01$). Constraining the covariances between the latent crowd factors to be equal across underclassmen and upperclassmen did not significantly reduce the model fit $\chi^2(6) = 6.35$, $p = .38$, signifying that the covariances between the latent factors were equal. Correlations between factors were similar to those shown in Fig. 1.

4.3 Structural equation models linking crowd affiliations to school maladjustment and risky health behaviors

Descriptive statistics and bivariate correlations between the outcome variables are presented in Table 2. Correlations were in the expected directions with loneliness and campus belongingness being negatively correlated and all four risky behaviors being positively correlated.

4.3.1 School maladjustment

Unstandardized path coefficients are presented in Fig. 2 for the two multi-group SEMs testing gender and college standing differences in the associations between the latent crowd affiliation variables and the latent school adjustment variables. Also shown are the range of standardized factor loadings for the manifest adjustment

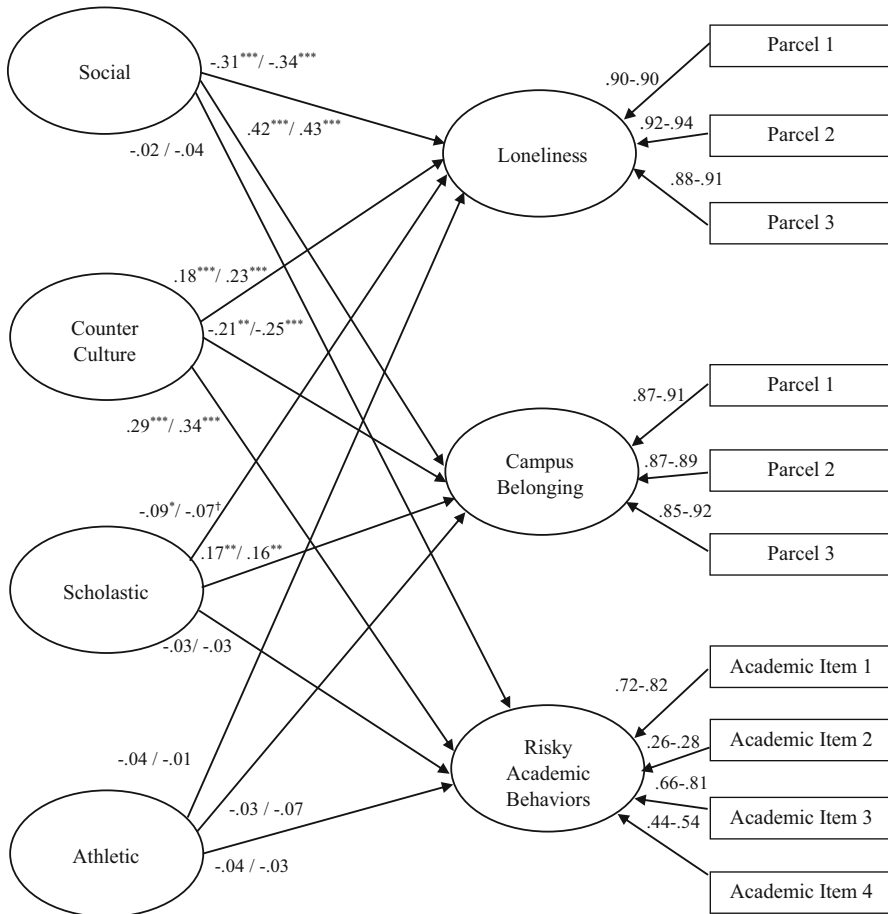


Fig. 2 Unstandardized path coefficients from crowd affiliations to indices of school adjustment. Coefficients to the left of the slash are from the model testing for gender differences. Coefficients to the right of the slash are from the model testing for differences across year in college. Also shown are the range of standardized factor loadings for the school adjustment variables for men, women, underclassmen, and upperclassmen. All loadings were significant at $p < .001$. * $p < .05$; ** $p < .01$; *** $p < .001$

variables for men and women and underclassmen and upperclassmen. Not shown are the loadings for the manifest crowd affiliation variables, as these were consistent with those presented in Fig. 1. The fit of the multi-group model testing for gender differences was not significantly worse when the paths from the latent crowd affiliation variables to the school adjustment variables were constrained to be equal for men and women, $\Delta\chi^2(12) = 15.89$, $p = .20$, indicating that these paths were invariant across gender. For parsimony, these paths were constrained to be equal across gender in the final model. This final model adequately fit the data, $\chi^2(538, N = 492) = 1043.73$, $p < .001$, CFI = .90, SRMR = .08, RMSEA = .06. Similarly, the fit of the multi-group model testing for differences as a function of college

standing was not significantly reduced when paths from the crowd affiliation latent variables to the school adjustment latent variables were constrained to be equal for underclassmen and upperclassmen, $\Delta\chi^2(12) = 16.02$, $p = .19$, indicating that these paths did not differ as a function of participants' year in college. A final model constraining these paths to be equal for underclassmen and upperclassman adequately fit the data, $\chi^2(536, N = 496) = 978.05$, $p < .001$, CFI = .91, SRMR = .07, RMSEA = .06.

A consistent pattern of relations emerged across men, women, underclassmen, and upperclassmen. Identifying with the *social* crowd or the *scholastic* crowd was associated with less loneliness and more campus belongingness. Identifying with the *counterculture* crowd was associated with more loneliness, less campus belongingness, and more risky academic behavior. Identifying with the *athletic* crowd, however, was not related to any of the school adjustment variables.

4.3.2 Risk Behaviors

Unstandardized path coefficients are presented in Fig. 3 for the two multi-group SEMs testing gender and college standing differences in the associations between the latent crowd affiliation variables and the latent risky behaviors variables. Also shown are the range of standardized factor loadings for the manifest adjustment variables for men and women and underclassmen and upperclassmen. Not shown are the loadings for the manifest crowd affiliation variables, as these were consistent with those presented in Fig. 1. The fit of the multi-group model testing for gender differences was not significantly worse when the paths from the latent crowd affiliation variables to the risky behaviors variables were constrained to be equal for men and women, $\Delta\chi^2(12) = 10.99$, $p = .53$, indicating that these paths were invariant across gender. For parsimony, these paths were constrained to be equal across gender in the final model. This final model adequately fit the data, $\chi^2(583, N = 492) = 991.78$, $p < .001$, CFI = .90, SRMR = .07, RMSEA = .05. Similarly, the fit of the multi-group model testing for differences as a function of college standing was not significantly reduced when paths from the crowd affiliation latent variables to the health risk behaviors latent variables were constrained to be equal for underclassmen and upperclassmen, $\Delta\chi^2(12) = 13.84$, $p = .31$, indicating that these paths did not differ as a function of college standing. A final model constraining these paths to be equal for underclassmen and upperclassman adequately fit the data, $\chi^2(581, N = 496) = 1074.03$, $p < .001$, CFI = .89, SRMR = .07, RMSEA = .06.

A consistent pattern of relations emerged across men, women, underclassmen, and upperclassmen. Identifying with a *social* crowd was associated with greater engagement in risky drug, alcohol, and sex behaviors, and identifying with a *counterculture* crowd was positively associated with engaging in risky drug and alcohol behaviors. In contrast, identifying with a *scholastic* or *athletic* crowd was associated with engaging less frequently in drug- and alcohol-related risk behaviors.

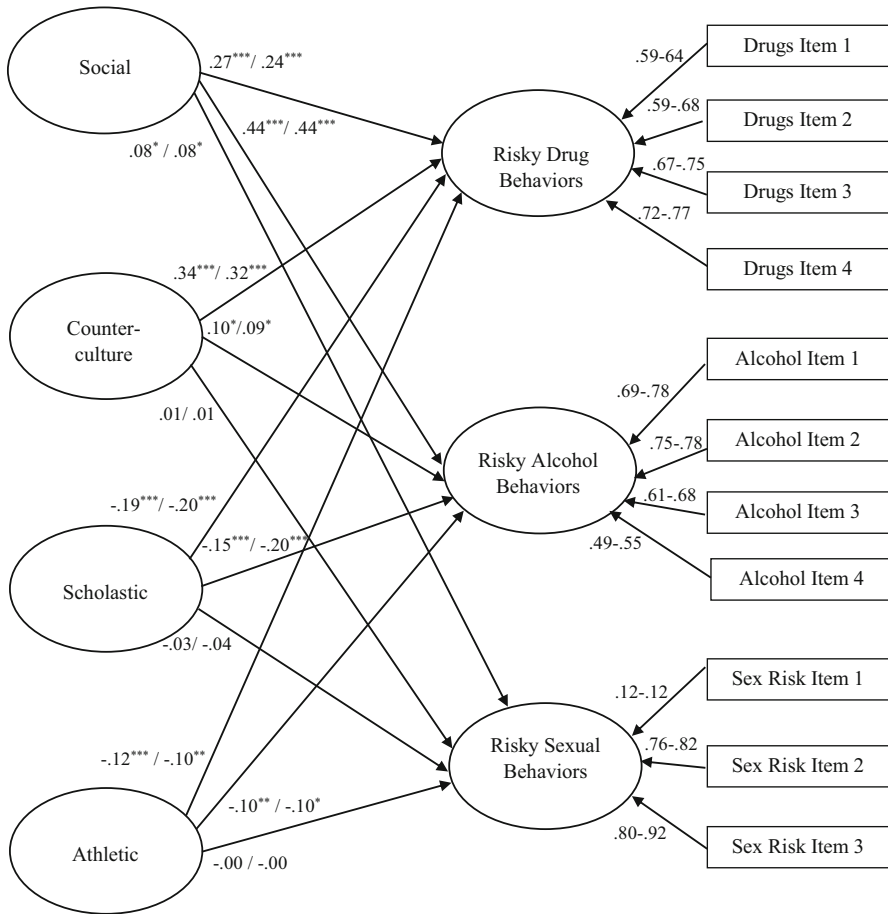


Fig. 3 Unstandardized path coefficients from crowd affiliations to indices of risky health behaviors. Coefficients to the left of the slash are from the model testing for gender differences. Coefficients to the right of the slash are from the model testing for differences across year in college. Also shown are the range of standardized factor loadings for the risky health behavior variables for men, women, underclassmen, and upperclassmen. All loadings were significant at $p < .001$ with the exception of the first risky sexual behavior item which was significant at $p < .016$. * $p < .05$; ** $p < .01$; *** $p < .001$

5 Discussion

Peer crowds have been theorized to play a fundamental role in the identity, behavioral, and academic adjustment of adolescents (Brown et al. 1994; Cross and Fletcher 2009; Prinstein and La Greca 2002). More recent research has suggested that crowd affiliations may play a similar role among college students. However, as the study of crowd affiliations among college students is fairly nascent, creation and validation of psychometrically strong assessment tools is critically needed. The current study addressed this issue by testing the replicability and generalizability of a new measure of college students' crowd affiliations. In particular, we sought to

address four main questions: (1) Are crowd affiliations in college best described by the four dimensions (i.e., *scholastic*, *social*, *athletic* and *counterculture*) identified by Hopmeyer and Medovoy (2017)? (2) Are the crowd dimensions invariant across participants' gender and college standing? (3) Are students' self-reported crowd identifications associated with their school adjustment and engagement in risk behaviors that compromise academic success and (4) are those associations moderated by gender and college standing?

Analyses replicated the initial factor structure of the CPCQ (Hopmeyer and Medovoy 2017) and confirmed that the factor structure was invariant across gender and college standing. Furthermore, the results demonstrated that crowd affiliations among college students are significantly associated with school adjustment and engagement in risky behaviors. That these associations were invariant across gender and age underscores the need to consider identification with crowds as a source of potential resilience and risk as students navigate the complex challenges posed by college and emerging adulthood.

5.1 Factor structure of the CPCQ

In an initial test of the CPCQ, exploratory factor analyses revealed four overarching crowd dimensions (Hopmeyer and Medovoy 2017)—*scholastic*, *social*, *athletic* and *counterculture*. In the current study, this factor structure replicated with a new sample of undergraduate students. Interestingly, these crowds are similar to those found within adolescent samples. For example, Delsing et al. (2007) noted that studies of American and Australian adolescents reliably identify crowds centered on athletics, deviancy, academics, and social status (e.g., “populars”). Thus, within the social system of the college campus, crowds may emerge reflecting the same values, interests, and behavioral orientations as those that are found within secondary schools.

Consistent with past research on self-reported peer crowd affiliations (Mackey and La Greca 2008), the crowd dimensions identified, were not completely orthogonal. Rather, correlations between the crowd dimensions ranged from low to moderate. Starting in adolescence, individuals tend to identify with multiple peer crowds rather than categorizing themselves as belonging to a single crowd, and the strength of those affiliations may fluctuate over time (Delsing et al. 2007). Furthermore, the “loner” item cross-loaded on both the *social* and *counterculture* factors. That it negatively loaded on the *social* factor is consistent with the premise that students identifying as part of a “loner” crowd feel disconnected from opportunities available on campus that promote social integration (e.g., the Greek system, parties, etc.). The “loner” item also loaded positively on the *counterculture* factor. This was consistent with Hopmeyer and Medovoy findings (2017), and suggests that identifying with crowds that are deviant (e.g., “druggies”) or that diverge from campus norms may lead to perceiving oneself as part of a socially isolated crowd. However, in studies of adolescents, a separate and distinct *loner* crowd has emerged (Bonsu 2012; Prinstein et al. 2000). In these studies, several crowds reflecting disengagement or isolation from peers were included (e.g., “uninvolved,” “loner,” “nobodies,” Erskine et al. 2006). It is possible that if more

items reflecting identification with socially disconnected peer crowds had been included in the measure, a separate *loner* crowd dimension would have emerged.

An important objective of this study was to determine whether the factor structure of the CPCQ is invariant across gender and class standing. Factorial invariance is a prerequisite for using any assessment tool to make comparisons across relevant subpopulations (Byrne et al. 1989). Differences in the patterns of crowd affiliations as a function of gender and age have been documented (e.g., Delsing et al. 2007; La Greca et al. 2001). Therefore, it is important to determine whether the CPCQ is testing the same underlying crowd dimensions for men and women and for underclassmen and upperclassmen. The analyses conducted here provided strong evidence that the factor structure of the CPCQ is invariant across gender and class standing and is, therefore, a valid measurement tool for testing differences across these subpopulations.

Nonetheless, a number of differences were found as a function of students' gender and college standing. The finding that men and women differ in the strength of their self-identification with certain peer crowds is consistent with research among adolescents (e.g., La Greca et al. 2001; Prinstein and La Greca 2002). These studies find that girls more than boys affiliate with "populards," and "non-conformists," while boys more than girls affiliate with "jocks" and "burnouts." In the present study, women reported greater affiliation with a "hipster" crowd, and men reported greater affiliation with a "foreign exchange" crowd. Emerging adults, who self-identify as hipsters in California value "...self-expression, artistic endeavors, nonmainstream physical appearance, and social justice." (Ling et al. 2014, pp. 752). It may be that, in this region of the country, college-women, more than men, describe themselves in this way. In terms of the gender difference in self-identification with the "foreign exchange" crowd, more men, than women, from abroad complete their undergraduate education at colleges in the United States (US Immigration and Customs Enforcement 2015).

In addition, correlations among the crowd affiliations were stronger for men than they were for women. College women, more than men, may feel that they need to commit to a single peer-group identity rather than exploring multiple identities (Benson and Elder 2011). Finally, upperclassmen reported greater affiliation with a *scholastic* crowd than underclassmen. This may reflect increased confidence in one's academic goals (e.g., having determined a major) and engagement in meaningful activities. Alternatively, students who report low affiliations with a *scholastic* crowd may be more likely than students who strongly identify with these crowds, to drop out of college (Tinto 1988). Thus, this increased affiliation with a *scholastic* crowd may reflect a selection effect as to who stays in college.

5.2 Crowd affiliation: Associations with school adjustment and health risk behaviors

Crowd affiliations are also believed to be integral to students' identities, and, therefore, powerful determinants of their academic success (e.g., Heaven et al. 2007). Although links between crowd affiliation and college success have not

been extensively studied, this proposition has been supported by research linking college students' crowd affiliations to their drinking behaviors (Sessa 2007), which can derail academic progress (Musgrave-Marquart et al. 1997). Of critical importance to success in college is feeling emotionally connected to others and one's school (Asher and Weeks 2014), maintaining one's academic progress (Pritchard and Wilson 2003), and avoiding risky behaviors (e.g., substance use, sexual behaviors) that jeopardize both physical health and likelihood of successfully completing one's degrees (Arria et al. 2013). Accordingly, this study followed-up on initial research conducted by Hopmeyer and Medovoy (2017) which examined associations between crowd affiliations and loneliness, school belongingness, and engagement in risky academic and sexual behaviors and substance use.

With few exceptions, the current findings replicate those obtained by Hopmeyer and Medovoy (2017), demonstrating significant associations between each of the crowd dimensions and students' school adjustment and risk behaviors. Moreover, these links were consistent across gender and college standing. Gender differences in the correlates of crowd affiliations have not been consistently identified (Prinstein and La Greca 2002), and, therefore, it is perhaps not surprising that few gender differences emerged in this study. It was somewhat surprising, however, that crowd affiliations were not more strongly tied to adjustment among underclassmen than upperclassmen. Among adolescents, the importance of crowd affiliation to socioemotional development lessens with age (Brown et al. 1986b). We had hypothesized that, among college students, a similar developmental process might be observed, such that, as they became more confident in their identities, crowd affiliation would be a less salient determinant of their school adjustment and involvement in risky behaviors. However, our findings indicate that the role of crowd affiliation in college students' identity and development remains stable across the school years.

Affiliation with a *scholastic* crowd was consistently associated with positive adjustment. Specifically, *scholastic* crowd affiliation correlated with less loneliness and more campus belonging, as well as engaging in less risky alcohol- and drug-related behaviors. *Scholastic* crowds may yield themselves to engagement in constructive activities that provide opportunities to socialize with peers who hold similar interests and backgrounds (e.g., performing arts, cultural organizations). Affiliation with a *scholastic* crowd may also reinforce personal goals, reducing the odds that students will engage in potentially destructive activities, such as risky use of alcohol or drugs.

Affiliating with a *social* crowd may yield tradeoffs between school adjustment and health behaviors. Although affiliating with a *social* crowd was associated with less loneliness and greater feelings of campus belonging, it was also related to greater engagement in risky sexual behaviors and substance use. As a sense of connection to others and one's school is predictive of college success (Asher and Weeks 2014), being part of a *social* crowd may be quite beneficial to many students. However, this is tempered by the tremendous risk placed on students' health and education when they engage in risky sexual behaviors and/or experiment with drugs and alcohol (e.g., Duncan et al. 2005; Miller et al.

2014). The double-edged sword of the *social* crowd parallels findings from research with adolescents (Prinstein and La Greca 2002). Students who self-identify as “jocks” or “populars,” and enjoy high social acceptance among their peers, also report engaging in higher rates of health compromising behaviors than other students. “Populars” for example, report higher alcohol use, while “jocks” engage in higher rates of both risky behaviors (e.g., doing something on a dare) and sex-related risks (e.g., unprotected sex).

In contrast, affiliating with a *counterculture* crowd evidenced no benefits. Students who reported affiliating with a *counterculture* crowd reported more loneliness, less college belonging, more risky academic behaviors, and more risky drug and alcohol use. Going against cultural and college norms and expectations is a defining characteristic of these crowds, and therefore it should not be surprising that affiliating with a *counterculture* crowd was linked to greater school maladjustment and substance use. Of importance for future research will be determining whether being a member of such a crowd more directly jeopardizes students’ academic achievement or likelihood of college completion.

Somewhat more surprising was the finding that affiliating with an *athletic* crowd had little bearing on academic achievement, and was associated with less engagement in drug and alcohol use. In adolescence, affiliating with a “jock” crowd is often associated with sexual- and alcohol-related risk taking behavior (La Greca et al. 2001; Miller et al. 2005). Other research has shown that participation in high school sports increases risk for substance use (e.g., Wetherill and Fromme 2007). It is possible that, in college, students who view themselves as part of an *athletic* crowd are concerned with the damage substances might do to their ability to play sports. However, this finding needs to be interpreted in the context in which this study was conducted. Participants attended a small liberal arts college with little emphasis on college-level sports. Whether affiliating with an *athletic* crowd would be associated with low levels of drug or alcohol use at larger, more sports-oriented schools, needs to be addressed in future studies.

6 Limitations

Before turning to our concluding comments, a number of limitations of the study need to be considered. First, all of the measures were self-report instruments and were collected at a single time point. More direct assessments of college achievement (e.g., GPA, completion) would provide a more robust test of the link between crowd affiliation and college adjustment. Moreover, models should be tested in which the college adjustment and risky behaviors assessed in the current study serve as mediators of the link between crowd affiliation and academic progress and college completion. Additionally, the participants in our study were from a small liberal arts college on the west coast and, as such, the findings might not generalize to emerging adults in other types of college institutions, in other regions of the country or other parts of the world. It is also noteworthy that the majority of the participants were female. The gender composition of our sample reflects the gender imbalance on this campus, and at most undergraduate

institutions (Williams 2010). Nonetheless, a different picture of the crowd dimensions important in emerging adulthood might emerge with a more gender-balanced sample, or on a campus where there are more males than females. Future research should explore emerging adults' crowd affiliations in a broader range of college environments, using longitudinal designs and a multi-informant approach. We predict that, even with these improvements in methodology, crowd affiliation will remain a significant predictor of college adjustment in emerging adulthood, just as it has proven to be in adolescence. We also predict that, while campus-specific, region-specific, and country-specific variation in crowd labels will undoubtedly be identified, and the CPCQ may need to be adjusted to accommodate those labels [such as "*ah lians*" (gangster-like girls) or "intellectuals" identified by Sim and Yeo 2012 in Singapore], they will organize themselves around the underlying crowd structure that we identified in this study. As Nejra Bešić astutely observed at the Society for Research in Adolescence Conference in Philadelphia in 2010 "... looking closely at peer crowds in different countries reveals unique crowd labels (such as Sweden's "punks," and "synths"); however, when we pull back the lens what we find is that these culture-specific crowds serve similar functions to those found in other countries. In all, we find a peer-oriented crowd, an academically-oriented crowd, and a norm breaking crowd." (N. Bešić, personal communication, March 11, 2010).

7 Conclusion

Considerable resources have been devoted to addressing college students' academic engagement, emotional well-being, and socio-behavioral well-being. School personnel, who are concerned about students' success and adjustment, will likely benefit from understanding the peer subgroups with which students identify. Consistently with this view, Hu et al. (2011) assert, "...although student typologies came into vogue in the higher education literature more than a half-century ago, their relevance (if systematically updated with valid, reliable data) can continue to inform policies and practices. In the absence of such information, we are only guessing as to the characteristics, attitudes, and behaviors that define who our students are and why they benefit from college in different ways" (pp. 14). The current study contributes to these efforts, and updates this work, by providing a more comprehensive understating of self-identified peer crowd affiliations in emerging adulthood and by documenting significant associations between students' crowd affiliations and their academic adjustment.

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Appendix 1: Risk and reckless behavior questionnaire

Subscale	Item
1. Academic risk	1.1 How many times during the past semester have you waited to start working on a paper until the day before (or the day) it was due?
	1.2 How many times during the past semester have you cheated on an exam or homework assignment?
	1.3 How many times during the past semester have you waited to start studying for an exam until the day before (or the day of) the exam?
	1.4 How many times during the past semester have you skipped a class?
2. Sexual risk	2.1 How many times in the past semester have you had unprotected sex?
	2.2 How many times in the past semester have you had intercourse with a non-exclusive partner?
	2.3 How many times in the past semester have you engaged in any form of sexual activity with a casual acquaintance?
3. Drug risk	3.1 How many times during the past semester have you used a prescription drug that was not your own?
	3.2 How many times during the past semester have you used marijuana?
	3.3 How many times during the past semester have you used any illegal drug other than marijuana?
	3.4 How many times during the past semester have you taken a drug offered to you by a friend?
4. Alcohol risk	4.1 How many times during the past semester have you injured yourself as a result of alcohol consumption (scrapes, falls, etc.)?
	4.2 How many times during the past semester have you blacked out from drinking (defined as being completely unable to remember some or all of the events that took place while under the influence)
	4.3 How many times during the past semester have you consumed alcohol to the point of physical illness?
	4.4 How many times during the past semester have you engaged in any form of sexual activity while under the influence of alcohol (that you would not have chosen to engage in, had you been sober)

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