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A Multivariate Analysis of the Relationship Between Undergraduate Fraternity/Sorority Involvement and Academic Performance

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Long: A Multivariate Analysis of the Relationship Between Undergraduate
A MULTIVARIATE ANALYSIS OF THE RELATIONSHIP BETWEEN
UNDERGRADUATE FRATERNITY/SORORITY INVOLVEMENT
AND ACADEMIC PERFORMANCE

LARRY D. LONG

This study explored the relationship between potential time commitments of fraternity and sorority members and academic performance. A secondary analysis of data collected using the Fraternity/Sorority Experience Survey revealed statistically significant relationships between cumulative grade point average and chapter involvement, engagement in academic activities, part-time work, and alcohol use. Chapter involvement, engagement in academic activities, and part-time work were positively associated with academic performance. Alcohol use was negatively related to academic performance. Implications for practice include establishing a culture of academic achievement in fraternal organizations, minimizing the use of alcohol, identifying and approaching academically at-risk members, and establishing initiatives to support the academic achievement of fraternity members.

Active engagement in the academic and social environments of a college campus has been positively associated with student persistence (Pascarella & Terenzini, 2005; Tinto, 1993). Students who are involved in student activities and frequently interact with students and faculty members are more likely to remain in college until graduation compared to students who are disconnected from the college experience. In particular, previous research indicates involvement in student governing associations, cultural organizations, and academic honoraries have positive effects on persistence (Baker, 2008). However, in regard to the relationship between student activities involvement and academic performance, the research is not clear. Some researchers have found a positive relationship between student activities involvement and academic performance (e.g., Baker, 2008; Derby, 2006) and some have found a negative relationship (e.g., Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008; Yin & Lei, 2007). Within the fraternity/sorority context, the research is limited and varied, as well. More research on the impact of fraternity or sorority membership on the academic performance of college students is needed to develop practices to support student

academic achievement. The results of this study add to the literature on student persistence and academic performance and have direct implications for student affairs professionals who work with fraternity and sorority members. The findings may assist these professionals in ensuring fraternity and sorority members are academically successful during their college career.

This study examined the relationship between the level of involvement in a fraternal organization and the academic performance of fraternity and sorority members at a large research institution in the Midwest. The researcher conducted a secondary analysis of a dataset collected using the Fraternity/Sorority Experience Survey.

REVIEW OF LITERATURE

Student retention is a problem for many colleges and universities across the United States (Kuh, 2007). The six-year graduation rate for students in the 2001 cohort who attended public and private institutions was 53.3% and 63.7%, respectively (Graduation Rates, 2008). The greatest percentage of student withdrawal tends to occur after the first year. Retention

rates decrease more gradually for sophomores, juniors, and seniors. To help students persist until their sophomore year, many colleges and universities devote resources to first-year experience programs (Jamelske, 2009). These programs are guided by theories on student persistence that generally state academic success is a function of time and effort (e.g., Astin, 1999; Tinto, 1993). In his classic work, *Leaving College*, Tinto (1993) used Durkheim's theory of suicide to explain student attrition. Tinto's theory suggests students leave college (voluntary withdrawal) because they are inadequately integrated into the academic and social environments of an institution. Institutional commitment is strengthened when students engage in educationally purposeful activities and are socially connected to the academic environment (Harper & Quaye, 2009).

Tinto (1993) described the concept of involuntary withdrawal. Involuntary withdrawal occurs when a student fails to meet the academic demands of a college or university and usually happens when students do not place enough emphasis on their academics. For instance, students, who are involved in multiple student organizations, might fail out of school for not completing their assignments. Astin (1999) noted this dilemma in his involvement theory. The researcher stated the "psychic and physical time and energy of students are finite" (p. 523) and faculty members compete with other activities for students' time. Successful students are able to balance their academic commitments with their social and work commitments. This balancing act, however, may be a problem for students who are overcommitted.

Student Engagement

First-year experience programs are meant to increase student engagement, which is the amount of time and effort students put into their studies and educationally purposeful activities (Kuh, 2007). Educationally purposeful activities involve behaviors that positively influ-

ence student development. Studying (Kuh et al., 2008; Rau & Durand, 2000), interacting with peers (Amenkhienan, 2000; Pascarella & Terenzini, 2005; Tinto, 1993), and interacting with faculty members (Amenkhienan, 2000; Dixon, 2003; Pascarella & Terenzini, 2005; Yang, 2001) are behaviors that promote academic success. Comparatively, working more than 20 hours per week, (Dundes & Marx, 2006; Kuh et al., 2008) and consuming alcohol (Musgrave-Marquart, Bromley, & Dalley, 1997; Porter & Pryor, 2007; Rau & Durand, 2000; Wielkiewicz, Prom, & Loos, 2005) are negatively associated with student academic performance. These activities may distract students from the academic environment.

Involvement and Academic Performance

Research on the relationship between involvement and academic performance is varied. Baker (2008) studied the relationship between campus involvement and the fall GPA of first-year, underrepresented college students using a multi-institutional dataset. The researcher found no relationship between the amount of time students dedicated to campus activities and GPA, however there was a relationship between GPA and the type of activity in which students engaged. Involvement in political organizations was the strongest, positive predictor. Kuh and his colleagues (2008) studied the academic performance and persistence of first-year college students at 18 institutions using the National Survey of Student Engagement. The researchers found a negative relationship between the number of hours respondents engaged in co-curricular activities per week and first year GPA.

Yin and Lei (2007) studied the impact of campus involvement on hospitality students enrolled at a state university in the Midwest and found a negative correlation between academic performance and involvement. Derby (2006) studied the involvement and academic performance of community college students. The researcher found that involved community college

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students tended to have higher grade point averages, were more likely to persist, and were more likely to graduate compared to students who were not involved. To explain this finding, the researcher suggested it is possible the involved students were just better students. Research conducted by Hernandez, Hogan, Hathaway, and Lovell (1999) supports the conclusion that the impact of student involvement on academic performance is inconclusive. The researchers conducted a review of literature on the topic and found that studies tended to use varying definitions of involvement. Moreover, some studies explored differences in academic performance, whereas others assessed differences in student development or learning.

Fraternity/Sorority Membership and Academic Performance

Research exploring the academic impact of membership in a fraternal organization is not clear. DeBard and his colleagues (2006) studied the difference in the academic performance of affiliated and non-affiliated first-year students at a mid-sized public institution in the Midwest. The researchers found a negative association between fraternity/sorority membership and GPA. In a follow-up study using a multi-institutional dataset, DeBard and Sacks (2010) found a positive, but weak association between fraternity/sorority membership and academic performance. The researchers did not provide an explanation for the contradictory finding.

Aside from academic performance, researchers have found that fraternity and sorority members tend to be more engaged in the academic environment (Pike, 2003) and engaged in more academically challenging tasks (Hayek, Carini, O'Day, & Kuh, 2002) compared to their non-affiliated peers. While the latter findings support Astin's theory of involvement, more research on the impact of fraternity and sorority involvement on student learning is needed. Limited or no research has explored the influ-

ence of part-time work and alcohol use on the academic performance of fraternity and sorority members.

Previous research on the relationship between student involvement and academic performance has had several limitations. One limitation is that researchers tended to focus on sub-populations, such as first-year students or underrepresented students (e.g., Baker, 2008; DeBard et al., 2006; Kuh et al., 2008). Another is that researchers tended to dichotomize involvement. These researchers generally compared the academic performance of involved students and students who were not involved (e.g., DeBard et al., 2006; Derby, 2006; Grubb, 2006; Hayek et al., 2002; Pike, 2003). Since the level of involvement differs for each student, assessing the impact of a student's involvement on his or her grade point average using different levels of involvement may be more telling. Due to the extended time commitment that higher levels of student involvement can require, it is plausible that higher levels of involvement are associated with a decrease in academic performance. The current study sought to assess the direction of this relationship.

METHODOLOGY

Overview of the Dataset

Survey data collected by a large, public, four-year research institution in the Midwest were used for the study. The institution will hereafter be referred to as Midwest University (MU). The institution was predominantly White (90%) and enrolled about 15,000 undergraduate students and 2,000 graduate students in 303 academic programs. MU was home to 1,175 fraternity and sorority members, who represented ten traditionally historically White fraternities, 11 traditionally historically White sororities, and seven multicultural fraternities and sororities. The fraternity/sorority community was predominantly White and female.

Selection of Data and Variables

The data were collected using the Fraternity/Sorority Experience Survey (FSES), an instrument that is commonly used to assess the experiences of fraternity and sorority members on a college campus. The Center for the Study of the College Fraternity (CSCF) at Indiana University in Bloomington, Indiana produced the FSES. According to the CSCF Web site, "The survey measures factors influencing chapter and Greek [sic] community support of intellectual and leadership development, values integration, and positive relationships" (CSCF, n.d.). The instrument had more than 300 response items pertaining to areas such as recruitment, chapter affairs, housing, alcohol use, academics, and personal growth and development. The FSES is currently undergoing validation (CSCF personal communication, October 16, 2012).

Sampling Approach

The Greek Life staff at MU administered the FSES during a formal meeting of the fraternal organizations. New members and initiated members attended this meeting. The Greek Life staff followed up with members who were not present at the meeting, which enabled the staff to attain an 86% response rate.

Demographics

The dataset consisted of responses from 1,011 participants. Because the recruitment practices and traditions of the multicultural fraternal organizations differed from those of the traditionally historically White fraternities and sororities, the researcher decided to remove the respondents from the seven multicultural fraternal organizations from the analysis ($n = 23$). Non-initiated respondents ($n = 84$) were also removed since only initiated respondents were instructed to complete the involvement measures of the FSES. After controlling for missing values using listwise deletion, the final sample size was 828 participants. The sample consisted of 286 male members (35.5%) and 542 female

members (64.5%). The ages of the respondents ranged from 18 to 25 years. The class distribution was 24.8% first-year students, 31.4% second-year students, 25.1% third-year students, and 17.1% fourth-year students. About 1.6% of the respondents reported they had completed five or more years of undergraduate study. The ethnic distribution of the sample was 1.0% African-American, 0.5% American-Indian, 0.7% Asian-Pacific Islander, 1.2% Chicano-Latino-Hispanic, 94.4% Caucasian, and 0.1% Middle Eastern. About 0.7% of respondents identified themselves as Other and 1.3% identified themselves as Multiracial. Based on institutional data, the distribution was representative of the fraternity/sorority population at Midwest University.

Dependent Variable

The dependent variable, GPA, was the self-reported cumulative grade point average of the respondents at the time the survey was completed. The respondents were instructed to report their GPA using the institution's plus-minus letter system as a guideline. About 30.2% of the respondents self-reported having an A average, whereas 57.1% self-reported a B average, and 12.7% self-reported a C average. According to institutional records, the average cumulative GPA for the fraternity/sorority community was 3.00, the equivalent of a B average.

Independent Variables

Four independent variables were used in the study: chapter involvement, alcohol use, study, and work. Chapter involvement was measured from a question that asked, "To what extent do you consider yourself to be involved in the activities of your chapter?" Respondents could answer with "Not at all involved," "Only slightly involved," "Moderately involved," "Very involved," and "Deeply involved." Alcohol use was measured using a question that prompted respondents to report the average number of drinks they consumed per week. The original FSES item produced continuous data. The scale of the

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question item was converted to an ordinal scale by using the following categories: 0 drinks, 1-4 drinks, 5-9 drinks, 10-14 drinks, 15-20 drinks, and 21 or more drinks. Study was measured with a question that prompted respondents to report how many hours per week they spent on academic activities such as studying, reading, writing, and doing lab work. This FSES item also produced continuous data. Similar to alcohol use, the scale of the question item was converted to an ordinal scale. The following categories were used: Fewer than 6 hours, 6-9 hours, 10-14 hours, 15-19 hours, and 20 or more hours. The fourth independent variable, work, was measured using the following question: "How many hours per week do you work?" The response categories were "None," "Fewer than 10 hours," "10-20 hours," "21-39 hours," and "40 or more hours." The researcher collapsed the first two categories because they were not mutually exclusive. The researcher also collapsed the last two categories because only two respondents indicated they worked 40 or more hours per week. This resulted in the following three categories: Fewer than 10 hours, 10-20 hours, 21 or more hours.

Control Variables

The control variables for the study were gender, parental education, and White. Research indicated women tended to have higher grade point averages compared to men (Allen, Robbins, Casillas, & Oh, 2008; DeBerard, Spielmans, & Julka, 2004; Miller, Danner, & Staten, 2008; Wielkiewicz et al., 2005) and men tended to consume greater amounts of alcohol compared to women (Capone, Wood, Borsari, & Laird, 2007; Cashin, Presley, & Meilman, 1998; Fairlie, DeJong, Stevenson, Lavigne, & Wood, 2010; Miller et al., 2008; Paschall & Saltz, 2007; Theall et al., 2009). Using gender as a control variable accounted for these differences. Parental education was used as a control variable to account for the differences in work patterns. Students who had parents with higher levels of education most likely received more fi-

nancial support and were able to spend more time on student activities. White, a measure of race, was included as a control variable in the model, however the researcher did not expect the variable to influence the results. This was because only 5.6% of the respondents in the sample were non-White.

Statistical Approach

The dependent variable, GPA, had an ordered interval scale, with C as the lowest response category and A as the highest response category. To analyze the relationship between the academic performance of the respondents and their engagement in a fraternal organization, alcohol use, academic activities, and work, the researcher used an ordinal logistic regression analysis. Logistic regression is useful for predicting the value of a dependent variable from one or more independent variables (Foster, Barkus, & Yavorsky, 2006). Ordinal logistic regression is a special case of logistic regression that can be used when the dependent variable has ordered categories (Kleinbaum & Klein, 2000). When conducting logistic regression analyses, one obtains a Chi-Square (χ^2) value for the goodness of fit of the model and beta (b) values (also known as regression coefficients) for each independent variable. A significant χ^2 value indicates that, collectively, the independent variables are significant predictors of the dependent variable. The beta values are used to determine if an individual independent variable is a significant predictor of the dependent variable. The null hypothesis of no relationship is that the beta value is equal to zero (Kleinbaum & Klein, 2000). Moreover, the exponentiated beta value is equal to the adjusted odds ratio (OR) associated with an independent variable (i.e., $e^b = \chi^2.718 \hat{\chi}^b = \text{OR}$). Odds ratios enable one to determine the change in odds of falling in one category of the dependent variable as one changes from one category of the independent variable to another. This is commonly referred to as a one-unit change in the independent variable.

Predictors of High Academic Performance

Table 1 presents the results of the ordinal logistic regression analysis. The regression model was statistically significant, $\chi^2(7) = 58.60, p < .001$. The findings indicated that being involved in chapter activities was related to high academic performance as measured by cumulative grade point average, $b = .166, OR = 1.181, p = .026$. A one unit increase in the level of chapter involvement increased a student's odds of earning a high cumulative GPA by a factor of 1.181. This means the odds of earning an "A" cumulative GPA were 18.1% higher for a student who was "Only slightly involved" compared to a student who was "Not at all involved." Figure 1 shows the predicted probabilities of earning a cumulative grade point average of A, B, or C as a function of chapter involvement. The figure shows that the probability of earning an A cumulative GPA increased with higher levels of chapter involvement, thus supporting the finding that chapter involvement was positively related to academic performance.

Similar to chapter involvement, involvement in academic activities ($b = .193, OR = 1.213, p$

$< .001$) and working part-time ($b = .262, OR = 1.300, p = .019$) were related to greater odds of earning high grades. Increasing study and work by one unit increased the odds of earning high grades by 21.3% and 30.0%, respectively. Being male and consuming large quantities of alcohol were negatively related to GPA. Men were 41.0% less likely to earn a high cumulative GPA compared to women, while a one unit increase in alcohol use lowered the odds of earning a high GPA by 11.7%.

As expected, there was no statistically significant relationship between White and GPA, $b = .026, p > .05$. Race/ethnicity might have a greater impact on academic performance in heterogeneous cultures.

Academic Performance by Student Type

To understand the relationship between chapter involvement and academic performance further, the researcher calculated predicted probabilities of earning a cumulative GPA of A, B, or C by four student types: leader, scholar, partier, and worker. These types were influenced by the research of Kuh, Hu, and Vesper (2000) and show the probability of succeeding academically for students who primarily focus

TABLE 1

Logistic Regression Model Predicting Cumulative GPA

Variable	b	SE	Z	eb
Chapter involvement	.166*	.075	2.224	1.181
Alcohol use	-.124*	.055	-2.250	.883
Study	.193***	.054	3.542	1.213
Work	.262*	.112	2.342	1.300
Gender	-.529**	.161	-3.276	.590
Parental Education	.177*	.084	2.109	1.193
White	.026	.306	0.085	1.026

* $p < .05$; ** $p < .01$; *** $p < .001$.

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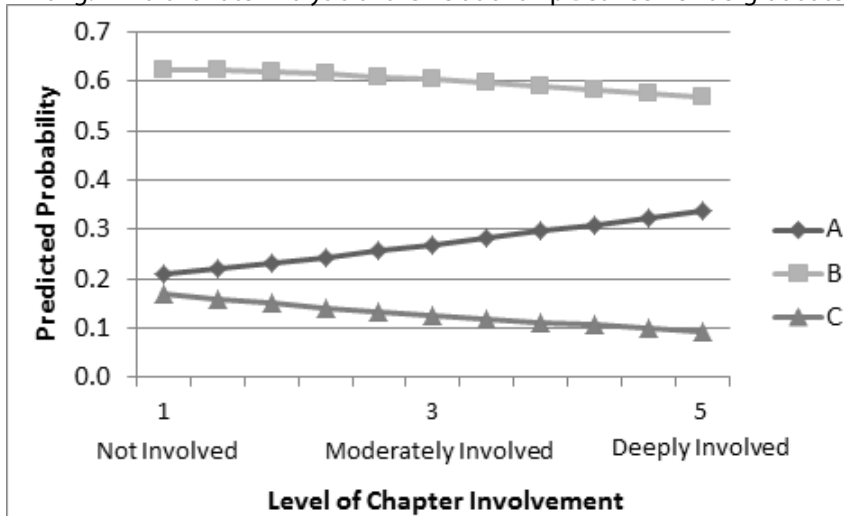


Figure 1. Predicted probability of earning a cumulative GPA of A, B, or C by chapter involvement.

on one of the four time-use measures. A description of the student types can be found in Table 2.

The leader student type was characterized by a high degree of chapter involvement and average levels of alcohol use and study. With the other variables held at their mean, a male “leader” had a 23.5% chance of earning an “A” cumulative GPA and a 61.7% chance of earning a “B” cumulative GPA. In comparison, a male “partier” only had a 9.1% chance of earning an “A” cumulative GPA. The scholar student type had the highest probability of earning high grades for both males and females. The results indicated that involved fraternity and sorority members had high probabilities of succeeding academically. The results of all four student types by fraternal membership are displayed in Table 2.

SUMMARY DISCUSSION

This study sought to assess the relationship between four involvement measures and academic performance. This study differed from other studies on the topic by looking at the re-

lationship of different levels of involvement on cumulative GPA. Significant relationships were found between academic performance and chapter involvement, studying, working part-time, and alcohol use. Students who were more involved in their chapter and in academic activities were more likely to have a high cumulative GPA compared to students who were less involved in these activities. This supports previous research that found positive relationships between campus involvement and academic performance (Baker, 2008; DeBard & Sacks, 2010; Derby, 2006).

A negative relationship was found between alcohol use and academic performance. Students who self-reported consuming higher quantities of alcohol were more likely to have lower cumulative grade point averages compared to students who consumed smaller quantities. Research outside of the fraternity/sorority context found a negative relationship between alcohol use and academic performance (Musgrave-Marquart et al., 1997; Porter & Pryor, 2007; Rau & Durand, 2000; Wielkiewicz et al., 2005). The results of the current study in-

Table 2

Predicted Probabilities of Cumulative GPA by Student Type

Student Type	Fraternity GPA			Sorority GPA		
	A	B	C	A	B	C
Leader	.235	.618	.147	.343	.565	.092
Scholar	.292	.594	.114	.412	.518	.070
Partier	.090	.559	.351	.143	.615	.241
Worker	.178	.625	.197	.269	.605	.126

Note. Leader type: chapter involvement (Very involved), rest (mean); Scholar type: chapter involvement (Only slightly involved), alcohol use (1-4 drinks per week), study (20 or more hours per week), rest (mean); Partier type: chapter involvement (Only slightly involved), alcohol use (21 or more drinks per week), study (less than 6 hours per week), rest (mean); Worker type: chapter involvement (Only slightly involved), alcohol use (5-9 drinks per week), study (less than 6 hours per week), work (21 or more hours per week), rest (mean).

dicate alcohol use is also negatively related to academic performance for fraternity and sorority members.

The researcher of the current study is not aware of previous research on the relationship between the part-time work and academic performance of fraternity and sorority members. The current study revealed a positive relationship between part-time work and academic performance. As suggested by Dundes and Marx (2006), working might positively influence academic performance by influencing members to prioritize their schedules.

IMPLICATIONS FOR PRACTICE

This study has several implications for practice. While the suggestions that follow may be of use to campus-based professionals, organization staff, and alumni/ae advisors (hereafter referred to as advisors) in the support of fraternity and sorority members, they are not quick fixes that will work on every campus. Advisors should assess the fraternal experience of the students at their institution or within their organization before designing specific interventions.

Establish an Academic Environment

In a study of high performing fraternity/sorority communities, Jelke (2001) found the best performing communities had high academic standards. The current study revealed that engaging in academic activities, such as studying, reading, writing, and doing lab work, was the strongest predictor of academic performance. Campus-based professionals should foster an academic environment within fraternities and sororities to promote the academic success of members. Alumni/ae volunteers might consider encouraging the use of on-campus resources, developing a workshop on good study habits, and enforcing quiet hours in chapter houses.

Minimize Alcohol Use

Alcohol use was negatively related to academic performance. Advisors should work to reduce the use of alcohol as a social bond by emphasizing social activities that do not include alcohol. Initiations and the receipt of a mentor (big brother/big sister) can be celebrated with group dinners or by attending a sporting event or concert, for example. Advisors should also educate members of the negative effects of alcohol use. Active approaches such as presenta-

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tions and workshops and passive methods such as display boards and table tents may be useful. While advisors may not be able to prevent students from consuming alcohol, advisors can be integral in decentralizing the role of alcohol in fraternal activities.

Identify and Approach Academically At-Risk Members

Alumni/ae volunteers and campus-based professionals interact with a variety of fraternity and sorority members. These volunteer advisors are most able to identify undergraduate members who may be directing too much of their attention toward chapter or social activities. Volunteer advisors should approach these students and help them understand that their academics, not extracurricular involvements, should be their top priority. Alumni/ae advisors might also identify academically at-risk members by requesting midterm grade reports from members.

Establish Initiatives to Support Fraternity Members

The findings from the study showed male members tended to have lower grade point averages compared to female members. Research also indicated that college men were less likely to persist and graduate compared to college women (Harper & Harris, 2010). Advisors working with fraternities should develop support initiatives to ensure the academic success of fraternity members. Alumni/ae volunteers and campus-based professionals may consider collaborating with on-campus academic and student services departments, such as tutoring centers and career and academic advising offices. Collaborative initiatives between fraternal organizations may also be beneficial.

FUTURE RESEARCH

The researcher attempted to model the relationship between some time commitments of

fraternity and sorority members and academic performance. While the model presents one view of the complex relationship, other models should be explored. In addition to the measures used in the current study, a model incorporating other common time commitments of fraternity and sorority members, such as performing community service, socializing, and sleeping, might present a more complete view of the fraternal experience. Future studies should also explore the relationship between involvement in multicultural organizations and academic performance. Members of multicultural organizations were not included in the current study. Last, while the design of the present study differed from previous research by taking different levels of involvement into consideration, the research approach still assumed a linear relationship between involvement and the academic benefits of involvement. Future studies should assess if there is a threshold where involvement ceases to produce positive gains.

LIMITATIONS

The findings of this study should be interpreted in light of the study's limitations. First, the research was correlational in nature. One cannot assume that increased chapter involvement causes fraternity and sorority members to succeed academically. Second, because the sample involved students attending one large, public, research institution in the Midwest, the findings may not be generalizable to other campus contexts. Future studies on the relationship between academic performance and student engagement should use data collected from multiple institutions. This could be accomplished by analyzing the aggregate results of the FSES. Third, the study focused on the experiences of students who were members of traditionally White fraternities and sororities. The findings are not generalizable to students who are members of multicultural fraternities and sororities. Lastly, the categories of the dependent variable

were not exhaustive. The research instrument did not have response categories for grade point averages below a "C-." This is because male college students were required to have earned at least a 2.3 cumulative GPA to join a fraternity (Academic Success, n.d.). Women at Midwest University were expected to have earned at least a 3.0 GPA to join a sorority. Moreover, MU students with a cumulative GPA below 2.0 were placed on academic probation and students who had a cumulative GPA below 2.0 for two consecutive semesters were academically dismissed. Even though these stipulations limit the likelihood of a fraternity or sorority member having a cumulative GPA below a "C" average, future studies should use exhaustive response categories.

CONCLUSION

Despite these limitations, this study contributed to the extant literature on the experiences of fraternity and sorority members by shedding light on the relationship between membership in a fraternal organization and academic performance. The results of this study suggest fraternity/sorority involvement can positively influence the scholastic endeavors of college students. Campus-based professionals, organization staff, and advisors can support the academic success of fraternity and sorority members by establishing a culture of academic achievement in fraternal organizations, minimizing the use of alcohol, identifying and approaching academically at-risk members, and establishing initiatives to support the academic achievement of fraternity members.

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