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# Social predictors of psychological well-being and symptoms of college students

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**ABSTRACT**

**Objective:** Limited research exists on the simultaneous effects of family functioning, social competence, and social support on the well-being and depression, anxiety, and stress of college students and the power of these effects. We examined these predictors in two models to determine each variable's impact on students' mental health.

**Participants:** From October 2018 to November 2018, 726 students from 18 institutions of varying sizes across the United States participated in an online survey.

**Methods:** Stratified random sampling with institution size and setting as the strata; descriptive statistics, Pearson correlation, and multiple linear regression to test study hypotheses.

**Results:** Variables predicted mental well-being and symptoms across both models, with social competence being the largest predictor, followed by perceived social support and family functioning.

**Conclusions:** Practitioners should consider the impact of social influences on student mental health and design interventions to strengthen social competence and support.

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College students; family functioning; mental health; social competence; social support

Over the past 15 years, researchers have found evidence to support an upward trend in the severity and prevalence of mental health problems among college students in the United States.[1,2] From 2010 to 2015, Xiao and colleagues[2] found that students reported significant increases in mental health history, harm to others, past trauma, and substance use. Furthermore, upward trends were found for suicide, self-harm issues, depression, generalized anxiety, social anxiety, and distress. Concurrently, the average number of overall appointments and students seeking counseling services increased an average of 30% every year. These findings may suggest that the mental health of college students seems to be declining over time, resulting in an increased need for mental health services on campus. Furthermore, these data reflect larger trends among the overall population of the United States, with young adults aged 18 to 25 reporting the highest prevalence of any mental illness (29.4%) compared to adults between 26 and 49 (25%) and those 50 and older (14.1%).[3]

Given the profound global impact of the COVID-19 pandemic, it is salient to review how the pandemic impacted student mental health. During the initial phase of the pandemic, Son and colleagues found that a sample of college students from a large public university in the United States reported increases in stress, anxiety, and sleep disturbances.[4] Similarly, a survey of students from eight campuses in the United States found small increases in frequency of depression, alcohol use disorder, and eating disorders.[5] Using a larger sample, Wang et al found that among students from a public university, a majority indicated their stress and anxiety levels had increased during the pandemic.[6] Alternatively, one longitudinal study found that stress, anxiety, and depression did not increase among students from before to during the pandemic.[7] Furthermore, the Collegiate Center for Mental Health reported mostly small increases in mental health symptoms that were in line with trends before the pandemic.[8] Most recently, Hirshberg et al found little evidence for significantly worse mental health during the pandemic, as trends were consistent with pre-pandemic trajectories for worsening mental health.[9] Taken together, this body of evidence suggests that while the pandemic may have initially impacted student mental health, this impact did not differ significantly from the trajectory of declining mental health compared to pre-pandemic trends. Therefore, some factors that influence mental health in the college student environment may have been stable throughout the phases of COVID-19, including psychosocial factors.

Specific psychosocial factors influence students' mental health as they enter college. Eichler[10] highlighted the importance of the second separation-individuation phase, in which college students begin to consolidate their self-concept as they move toward independence and away from dependence on their family of origin. Furthermore, college students often begin to seek out and sustain mature interpersonal relationships with others. This process can be influenced by earlier interpersonal relationships, such that students entering college with limited success in relationships may be challenged by new social opportunities. College students must also balance newfound independence with connectedness to their families. Illuminating this process of connection, Chickering

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and Reisser's[11] theory of student development described the identity development of college students across seven vectors and includes moving through autonomy toward interdependence, developing mature interpersonal relationships, and establishing identity. Such factors contribute to the developmental transition to college that offers many opportunities for growth as well as liabilities regarding mental health and well-being.

While multiple factors must be considered regarding the mental health of college students, one area of concern that has not been adequately addressed in the literature is the influence of college students' families on their mental health. Researchers have related the influence of parent and family relationships to a broad range of student functioning, including autonomy and self-efficacy, [12] academic self-concept,[13,14] and well-being.[15] Furthermore, researchers have found empirical support for the influence of the family on presenting problems in college counseling centers,[16,17] especially depression.[12,18] Family dynamics also play an important role in the prevention of mental health problems[19] and the development of peer[20] and romantic relationships.[21] Research findings suggest that developing supportive social networks in college is important to college students' mental health;[22] relationships that typically begin in the family. Furthermore, during COVID-19, higher levels of in-person interactions were associated with lower mental health symptoms and higher well-being among college students, reinforcing the impact of social networks during the pandemic.[9]

Despite the importance of the family to college students' mental health, parents and other family members are often not included in counseling center outreach efforts.[23] A lack of consideration for the influence of the family on the mental health of college students has been attributed to several factors, including (a) the predominance of developmental perspectives valuing separation from the family during young adulthood, (b) stereotypes and reactions to "helicopter parents", and (c) privacy concerns related to the Family Education Rights and Privacy Act (FERPA) and the Health Insurance Portability & Accountability Act (HIPAA). Regardless of these factors, the continued identification of family problems as a primary presenting concern among students[8] as well as the significant influence of family dynamics on numerous factors during early adulthood and college life highlights the need to understand students' mental health needs from a broader systemic perspective.

The current understanding of college students' mental health by mental health providers is often focused on the individual student without fully considering the impact of family functioning or social support networks. Family functioning can directly influence students' mental health,[8] while also affecting students' ability to build peer and romantic relationships.[24,25] In turn, students' ability to build and access social support from peers and families may be affected by family functioning, which can also influence their mental health.[22,26] Following is a review of the literature related to the impact of family functioning, social competence, and social support on students' mental health.

## Literature review

### Family functioning

Family functioning has been defined by Lewandowski and colleagues as "the social and structural properties of the global family environment" [27(p. 1028)] and includes interactions and relationships within the family unit. Most models of family functioning, including the Circumplex Model,[28] include phenomena such as level of conflict and cohesion, adaptability, organization, and quality of communication within the construct of family functioning.

The extant literature supports the notion that past and current family functioning may directly influence college students' mental health, which is supported by a recent report indicating that family concerns were endorsed by 29.3% of students in college counseling centers.[8] Hoffman and Weiss[17] found that college students were adversely affected by conflictual family relationships while attending school, such that interpersonal conflict in the family predicted intrapersonal distress among the student members of those families. In a similar study, Johnson[29] found that among female participants, close family relationships were inversely associated with symptomatology, while distant family relationships were positively associated with elevated levels of symptomatology. More recently, Brack et al[16] found that among clients in a college counseling center, over three-quarters reported experiencing some form of emotional abuse in their family, while one-quarter reported experiencing sexual abuse in their family. Furthermore, childhood emotional abuse was a significant predictor of depressive symptoms and adulthood emotional abuse among students. The findings of these studies support the idea that family conflict, distant family relationships, and abuse in the family system can lead to mental health difficulties among some students during college, and that some students may then seek mental health services due to these difficulties.

Other researchers have explored the potential influence of family functioning and support on the mental health of college students using a variety of methods. Uruk and colleagues[15] found that family cohesion and adaptability significantly and positively predicted psychological well-being and were inversely predictive of trauma symptoms. Similarly, Li et al[30] found that parental support was positively related to self-esteem and negatively related to depression. Taking a longitudinal approach, Needham[31] used a latent growth curve analysis to examine associations between depression and parental support in the transition from adolescence to young adulthood. The results of the study supported the notion that parental support influences depression, such that higher levels of parental support in adolescence were associated with lower initial levels of depressive symptoms. Therefore, family functioning and parental support may also serve to buffer the potential emergence of negative mental health symptoms and facilitate positive psychological processes such as self-esteem and well-being.

### Social competence

Social competence, or "the ability to handle social interactions effectively",[32] is related to getting along well with others, being able to form and maintain close relationships,

and responding in adaptive ways in social settings. Researchers have primarily explored the association between family functioning, social competence, and mental health. Bell et al[33] found a significant positive association between intrafamily affect and social competence among college students, such that closer family relationships were related to higher levels of social competence. Similarly, Rhoades and Wood[34] also found that more positive and less negative feelings about one's family were associated with greater self-reported dating competence, more social assertiveness, and greater intimacy in relationships.

Attachment and conflict in the family may also influence social competence. Holt[35] found that, among a range of interpersonal constructs, social competence mediated the association between attachment and social adjustment reported by college students, implying that social competence may reflect attachment styles that influence self-perceived adjustment among students. Regarding romantic relationships, Kumar and Mattanah[36] found that interparental conflict and parental intrusion seemed to interfere with students' competence in romantic relationships. Results of these studies support the idea that levels of social competence may impact students' ability to build and maintain vital social networks upon entering the college environment.

### *Social support*

Social support has been defined as "the social resources that persons perceive to be available or that are provided to them by nonprofessionals in the context of both formal and informal helping relationships" [37(p. 4)] and has been empirically supported as a factor that influences mental health and well-being.[38] Social support has been conceptualized as multidimensional stemming from family, peer, teacher, and significant other relationships[26] and has been theorized as serving two different functions. The general benefits (GB) model asserts that social support can offer benefits through an increased sense of well-being and promotion of positive psychological factors, including self-worth, purpose, and positive affect. The GB model also posits that social support reduces negative affect based on the promotion of positive affect.[39] The GB model is often compared to the stress-buffering (SB) model, which posits that social support mediates the influence of stress such that those with limited social support are impacted more by stress than those with adequate support.

Studies of the association between social support and mental health have generally supported the benefits of perceived social support. A meta-analysis of studies examining the relationship between social support and depression among adults indicated that perceived social support played a protective role against depression across the general population.[40] Using a meta-analytic review, Reuger and colleagues[26] found social support to have a moderate effect size on depression in childhood and adolescence. Regarding college students, Hefner and Eisenberg[22] found that low levels of social support were significantly associated with measures of negative mental health symptoms, with the strongest association with measures of depression. Higher perceived quality of social support was strongly associated with a lower likelihood of depression, anxiety, suicidality, and eating disorders, regardless of the frequency of social contacts and other individual characteristics.

Further exploring the influence of social support on the mental health of college students, Farrell and Langreher[41] explored the associations between perceived stress, social support, depression, and protective factors against suicide in a group of ethnically diverse students. Across all students, high levels of perceived social support were effective in buffering the influence of stress, while low levels of support led to increased vulnerability to stress. Similarly, Shelton and colleagues[42] examined the impact of social support among students identifying with different cultural orientations (independent and interdependent). The researchers found that low levels of perceived social support significantly predicted mental health indicators of depressive symptoms, symptoms of anxiety, stress, and life satisfaction. Conversely, higher levels of social support predicted better mental health levels, including fewer depressive and anxiety symptoms, lower stress levels, and higher satisfaction with life. Based on these findings, social support seems to be an important consideration across students of diverse identities.

The review of the literature supports an association between the mental health of college students and the constructs of family functioning,[15] social competence,[35] and social support.[22] However, these variables have never been examined together regarding their ability to predict mental health outcomes. Examining how these variables predict mental health among students could assist practitioners and administrators in higher education in developing interventions and policies that facilitate mental wellness and buffer against mental health difficulties. Thus, the specific purpose of this study was to explore whether there were associations between family functioning, social competence, social support, and mental health among a sample of undergraduate students in the United States and whether family functioning, social competence, and social support predicted well-being and symptomatology among undergraduate students.

## Current study

The following research questions guided the analyses: (a) do family functioning, social competence, social support, and mental health differ according to demographic and institutional characteristics? (b) are there associations between family functioning, social competence, social support, mental wellness, and symptoms of depression, anxiety, and stress? (c) do levels of family functioning, social competence, and social support predict levels of mental wellness and symptoms of depression, anxiety, and stress? and (d) does social competence mediate the relationship between family functioning and social support? Given the extant literature supporting the influence of social constructs (i.e., family functioning, social competence, social support) on college student mental health,[15,22,35] the researcher hypothesized that these social constructs would predict levels of mental health and levels of symptomatology among college students. Furthermore, given the relationship between family functioning and social comptence[33,34] and the relationship between social competence and social support,[35,36] the researcher

hypothesized that social competence would mediate the relationship between family functioning and social support.

## Method

### Sampling procedures

In this cross-sectional quantitative study, survey research procedures were used to gather data from a random sample of undergraduates across the United States. Following approval from the institutional review board, multistage cluster sampling was used. Clusters consisted of randomly selected institutions of higher education grouped according to Carnegie Size & Setting classification[43] to be reflective of the overall proportions of institutions nationally within the context of this classification. Institutions were chosen based on their status of being primarily and highly residential per Carnegie classification, indicating that at least 25% of students lived in college owned-operated or college-affiliated housing, and at least 50% of students attended full-time. Residential institutions were chosen based on the implication that most students lived independently from their family of origin, potentially highlighting the impact that family functioning could have on students' mental health even if students were not living with their family of origin. Based on these criteria, clusters included: (a) four-year, small, primarily residential and highly residential institutions (i.e., between 1,000 and 2,999 students), (b) four-year, medium, primarily residential and highly residential institutions (i.e., between 3,000 and 9,999 students), and (c) four-year, large, primarily residential and highly residential institutions (i.e., over 10,000 students). A fourth category, four-year, very small, primarily residential and highly residential institutions, was excluded from the study based on no response to requests for participation.

The procedure for selecting the sample consisted of several steps. First, a database was created consisting of all institutions fitting the selection criteria of the study using the Integrated Postsecondary Education Data System.[44] Stratification was used to categorize institutions from the database according to Carnegie size and setting classifications.[43] To obtain a representative sample of institutions across the United States, simple random sampling was used to select institutions within each stratum. Once selected, the researcher contacted each institution's registrar by email regarding the availability of undergraduate student directory information, including student name, year (i.e., freshman, sophomore, junior, senior), and email address. Institutions that did not make this information publicly available or that provided directory information at a monetary cost were removed from the sample. The researcher gathered directory information from 18 institutions, including nine small, six medium, and three large institutions to match the size and setting proportions of the overall population (i.e., 49% small, 32% medium, and 19% large institutions). The final sample of small-sized institutions included seven southern, one northeastern, and one midwestern institution; of medium-sized institutions consisted of three northeastern, two midwestern, and one southern institution; and of three large-sized institutions in the Midwest. The response rate for each category was 5% for small schools, 6.42% for medium schools, and 33.3% for large schools.

Ten thousand, six hundred and forty-five participants were invited to complete the study. To represent each stratum proportionally, the target sample for each stratum was indicated by the overall proportion of students attending each size of the institution, resulting in the following target sample sizes: 1,995 for small institutions (13.3%); 2,720 for medium institutions (27.2%); and 5,930 for large institutions (55.7%). A comparable number of participants was recruited from each institution based on the target sample size and the number of institutions in each stratum (e.g., ~222 participants recruited from each small institution).

### Data collection

Data were collected using the Qualtrics online survey program and followed the tailored design method for web and mobile questionnaires to maximize the quality of the data.[45] Using the Qualtrics distribution function, potential participants were sent an initial email with a brief description of the study, an informed consent form, and an invitation to participate in the study. Upon clicking the URL link located in the Qualtrics email, participants were directed to the informed consent portion of the survey. After reading the informed consent, participants indicated if they agreed to complete the survey.

Those who participated in the survey were automatically removed by Qualtrics from the email list following completion. Potential participants who did not complete the survey were sent an email reminder after two weeks after the initial invitation and a third and final reminder was sent after another four weeks after the initial invitation if the participant had not yet responded to the request. The researcher offered a certificate of completion following the end of the study with the intent that students may be able to use the certificate of participation in research was required by their institution or instructor. Data collection began in October 2018 and ended in November 2018.

Before data analyses, the data set was cleaned according to best practices.[46] From the overall sample of 1,392 responses (response rate of 13.08%), 666 were removed from the final data set utilizing listwise deletion for the following reasons: 13 participants indicated that they did not fit the qualifications of the study, 51 did not respond to the informed consent, 65 did not agree to the study, 431 were missing significant amounts of data (i.e., over 25% of the overall data or a single measure), 102 failed the validity questions, and four were under the age of 18. This left an overall sample of $n = 726$, which was 6.82% of the target sample.

### Instrumentation

#### Family Adaptability and Cohesion Evaluation Scale-IV

Family functioning was measured using the Family Adaptability and Cohesion Evaluation Scale-IV (FACES-IV).[28] The FACES-IV

is composed of 42 items measuring dimensions of family cohesion and adaptability across six subscales and uses a five-category response format ranging from 1 = *strongly disagree* to 5 = *strongly agree*. Two subscales assess balanced aspects of cohesion (e.g., "Family members are involved in each other's lives") and flexibility (e.g., "My family is able to adjust to change when necessary"), and four subscales assess aspects including disengaged (e.g., "Family members seem to avoid contact with each other when at home") and enmeshed (e.g., "Family members feel pressured to spend most fee time together") representing unbalanced cohesion and rigid (e.g., "Our family has a rule for almost every possible situation") and chaotic (e.g., "Things do not get done in our family") representing unbalanced flexibility. Creators of the FACES-IV suggest utilizing a Circumplex total ratio figure, which indicates a family's balanced and unbalanced characteristics in a single score, which is calculated by diving the average of the two balanced scales by the average of the four unbalanced scales.[28] The FACES-IV has demonstrated good internal consistency (α = .77-.89) across all scales,[28] although the enmeshment scale demonstrated less than acceptable internal reliability (α = .65) in one study.[47] In this study, the FACES demonstrated acceptable to good reliability for the Cohesion (α = .87), Flexibility (α = .79), Disengaged (α = .81), and Chaotic (α = .82) subscales. However, as in other studies, the Enmeshed subscale demonstrated poor reliability (α = .54) in this study, while the Rigid subscale also demonstrated suboptimal reliability (α = .68).

### Texas Social Behavior Inventory Form A

Social competence was measured using the Texas Social Behavior Inventory Form A (TSBI).[48] The TSBI Form A is composed of 16 items measuring self-esteem (e.g., "I feel confident of my appearance") and social competence (e.g., "I am not likely to speak to people until they speak to me") and uses a five-category response format ranging from 1 = *not at all characteristic of me* to 5 = *very much characteristic of me*. Both short-form versions of the TSBI have demonstrated strong reliability (α = .85-.88). In this study, the TSBI demonstrated good reliability, α = .87.

### Multidimensional Scale of Perceived Social Support

Social support was measured using the Multidimensional Scale of Perceived Social Support (MSPSS).[49] The MSPSS is composed of 12 items measuring the perceived adequacy of support with three subscales including family (e.g., "I can talk about my problems with my family"), friends (e.g., "My friends really try to help me"), and significant others (e.g., "There is a special person with whom I can share joys and sorrows"), and the measure uses a seven-category response format ranging from 1 = *very strongly disagree* to 7 = *very strongly agree*. Internal consistency has been adequately demonstrated for the MSPSS, with coefficient alphas ranging from α = .81 to .98 for individual subscales and from α = .84 to .92 for the overall scale.[50] In this study, the MSPSS demonstrated excellent overall reliability (α = .92) as well as high reliability coefficients for the Significant Other (α = .95), Family (α = .92), and Friends (α = .93) subscales.

### Mental Health Continuum-Short Form

Well-being was measured using the Mental Health Continuum-Short Form (MHC-SF).[51] The MHC-SF consists of 14 items measuring emotional (e.g., "…happy"), psychological (e.g., "…that you liked most parts of your personality"), and social well-being (e.g., "…that you belonged to a community") and uses a six-category response option measuring the frequency with which respondents experienced a symptom over the past month ranging from 1= *never* to 6 = *every day*, with higher scores representing higher degrees of wellbeing. Good internal consistency (α = .89) has been demonstrated for the overall scale of the MHC-SF, while subscale reliabilities range from .74 to .83. In this study, the MHC-SF demonstrated excellent overall reliability (α = .94) as well as high reliability coefficients for the Emotional (α = .9), Social (α = .85), and Psychological (α = .87) subscales.

### Depression, Anxiety, and Stress Scales-21

Symptoms of psychopathology were measured using the Depression, Anxiety, and Stress Scales-21 (DASS-21).[52] The DASS-21 is composed of 21 items measuring multiple dimensions of depression (e.g., "I felt I had nothing to look forward to"), anxiety (e.g., "I felt I was close to panic"), and stress (e.g., "I found it hard to wind down"), and uses a four-category response option ranging from 0 = *did not apply to me at all* to 3 = *applied to me very much, or most of the time* to rate the extent each item has applied to the respondent over the past week. In the current study the DASS-21 demonstrated good reliability overall (α = .94), as well as good reliability coefficients for the Depression (α = .92), Anxiety (α = .84), and Stress (α = .85) subscales individually.

### Demographics form

Participants were asked to complete a brief demographics form regarding their age, gender, year (i.e., freshman, sophomore, junior, senior), race/ethnicity, and the name of their institution.

### Validity-check questions

Two questions were embedded in the overall survey to check the validity of participants' responses. One question each was included at the end of the TSBI and the DASS-21, respectively. The questions asked participants to select a specific response (i.e., "For this item, please select…") to ensure that participants were reading each question and not randomly selecting their answers. The responses of participants who answered the question incorrectly were removed from the sample prior to data analysis.

## Participants

The sample identified as being primarily female ($n$ = 514, 71%), followed by 26% of the sample ($n$ = 193) identifying as male. Three percent of the sample ($n$ = 18) identified as transgender/gender nonconforming, preferred not to disclose, or preferred to self-describe. The sample also identified as being primarily white ($n$ = 599, 83%), followed by Hispanic or Latino ($n$ = 42, 6%), Black or African American

($n = 28$, 4%), and Asian ($n = 24$, 3%). Less than 2% of participants identified as multiracial, American Indian or Alaskan Native, Native American or Other Pacific Islander, or self-described their ethnicity. Like the overall sample, 16 of the 18 samples from individual institutions were over-represented by students identifying as female and white. Most participants identified as Seniors ($n = 199$, 27%), followed by Freshmen ($n = 189$, 26%), Juniors ($n = 151$, 21%), Sophomores ($n = 145$, 20%), Graduate Students ($n = 25$ 3%), and Other ($n = 16$, 2%). Regarding Carnegie classification, most students attended Large institutions ($n = 302$, 42%), followed by Medium ($n = 251$, 35%) and Small ($n = 173$, 24%) institutions. See Table 1 for a summary of demographic data from the sample and overall population by institution.

### Data analysis

Following the completion of data collection, the data were entered into a database and analyzed using SPSS Version 25.[53] Descriptive statistics were used to examine the mean and standard deviation of participants' scores on the subscale and total scores of each measure. The findings are summarized in Table 2. Before running analyses that addressed research questions one and two, preliminary analyses were performed to ensure no violation of the assumptions of each test. Examining the skewness and kurtosis statistics indicated that none of the data were significantly non-normal. Cook's distance statistic and Leverage statistic indicated no values above 1 or .5, respectively, indicating no presence of outliers. Due to the assumption of normality being met, bivariate correlation and multiple linear regression analyses were performed. Analyses were performed without controlling demographic or institutional differences.

## Results

### Research question one

The first research question was "Do family functioning, social competence, social support, and mental health differ according to demographic and institutional characteristics?" One-way analyses of variance (ANOVA) were used to explore whether scores significantly differed on the FACES-IV, TSBI, MSPSS, DASS-21, and the MHC-SF total scores across race/ethnicity. To account for small sample sizes prior to running comparisons for ethnicity, the researcher combined groups with less than 30 participants into an "Other" group, which included participants identifying as American Indian or Alaska Native, Multiracial, Native American or Other Pacific Islander, and Other. There were no significant differences in scores across ethnicity on the FACES-IV, $F(7,717) = 1.39$, $p = .206$, the TSBI, $F(7,717) = 1.09$, $p = .37$, the MSPSS $F(7,717) = 1.76$, $p = .09$, the DASS-21, $F(7,717) = .499$, $p = .84$ or the MHC-SF, $F(7,717) = 1.66$, $p = .116$.

A second one-way ANOVA was run to determine whether total scores on each measure varied according to institution size. There were no significant differences in scores across institution size on the FACES-IV, $F(2, 723) = 1.84$, $p = .16$, the TSBI, $F(2, 723) = 2.27$, $p = .1$, the MSPSS, $F(2, 723) = .98$, $p = .38$, or the MHCSF, $F(2, 723) = .61$, $p = .54$. There was a statistically significant difference between institution size regarding the DASS-21, $F(2, 723) = 3.27$, $p = .04$. However, both the Levene's test and Welch statistic indicated a violation of equal variances, and a Games-Howell post hoc test further indicated no significant differences on DASS-21 scores between institution size.

### Research question two

The second research question was "Are there associations between family functioning, social competence, social support, mental wellness, and symptoms of depression, anxiety, and stress?". The relations between the FACES-IV Cohesion, Flexibility, Disengaged, and Chaotic subscale scores, TSBI total scores, MSPSS, mean scores, MHC-SF total scores, and the DASS-21 total scores were investigated using Pearson correlation. Table 3 presents the results of this analysis.

### Research question three

The third research question was "Do levels of family functioning, social competence, and social support predict levels of mental wellness and symptoms of depression, anxiety, and stress?". Linear multiple regression was used to analyze the outcome variables of the MHC-SF and the DASS-21 with the predictor variables of the FACES-IV Cohesion, Flexibility, Disengaged, and Chaotic subscale scores, TSBI total scores, and MSPSS subscale mean scores (i.e., Significant Other, Family, Friends). The FACES-IV Enmeshed and Rigid subscales were not included in the analysis due to suboptimal reliability scores. Preliminary analyses were conducted, and no violations of the assumptions of normality, linearity, multicollinearity, and homoscedasticity were found. When using the MHC-SF as the outcome variable, the linear composite of independent variables predicted 54% ($R = .73$, $R^2 = .54$) of the variance in MHC-SF scores, $F(8, 717) = 104.39$, $p < .001$. The TSBI total scores ($\beta = .42$, $p < .001$), MSPSS Friends subscale scores ($\beta = .19$, $p < .001$) FACES-IV Flexibility subscale scores ($\beta = .17$, $p < .001$), MSPSS Family subscale scores ($\beta = .16$, $p < .001$), and MSPSS Significant Other subscale scores ($\beta = .12$, $p < .001$) added significantly to the prediction. When using the DASS-21 as the outcome variable, the linear composite of independent variables predicted 34% ($R = .58$, $R^2 = .34$) of the variance in DASS-21 scores, $F(8, 717) = 46.43$, $p < .001$. The TSBI total scores ($\beta = -0.35$, $p < .001$), MSPSS Family subscale scores ($\beta = -0.16$, $p < .01$), MSPSS Friends subscale scores, ($\beta = -0.15$, $p < .001$), Chaotic FACES-IV subscale scores ($\beta = .12$, $p < .01$), and Disengaged FACES-IV subscale scores ($\beta = .11$, $p < .05$) added significantly to the prediction. Regression coefficients and standard errors can be found in Table 4.

### Research question four

The fourth research question was "Does social competence mediate the relationship between family functioning and social support?" Linear multiple regression was first used

**Table 1.** Demographic characteristics of the sample and population.

| *Sample Characteristic* | *n* | % | *Population Characteristic* | *n* | % |
|---|---|---|---|---|---|
| **Overall Sample** | | | | | |
| Gender | | | | | |
| Female | 514 | 70.8 | | 11,427,910 | 57.1 |
| Male | 193 | 26.6 | | 8,580,524 | 42.9 |
| Prefer to self-describe | 3 | .4 | | | |
| Prefer not to disclose | 2 | .3 | | | |
| Race/Ethnicity | | | | | |
| White | 599 | 82.5 | | 9,955,330 | 49.8 |
| Hispanic or Latino | 42 | 5.8 | | 3,578,059 | 17.9 |
| Black or African American | 28 | 3.9 | | 2,433,961 | 12.2 |
| Asian | 24 | 3.3 | | 1,260,808 | 6.3 |
| Other | 14 | 1.9 | | | |
| Multiracial | 13 | 1.8 | | 708,710 | 3.5 |
| American Indian or Alaska Native | 3 | .4 | | 133,079 | 0.7 |
| Native Hawaiian or Other Pacific Islander | 2 | .3 | | 49,632 | 0.2 |
| **Overall Small Institution Sample** | | | | | |
| Gender | | | | | |
| Female | 117 | 67.6 | | | |
| Male | 50 | 28.9 | | | |
| Transgender/Gender nonconforming | 4 | 2.3 | | | |
| Prefer to self-describe | 2 | 1.2 | | | |
| Race/Ethnicity | | | | | |
| White | 202 | 8.5 | | | |
| Hispanic or Latino | 10 | 5.8 | | | |
| Black or African American | 8 | 4.6 | | | |
| Other | 6 | 3.5 | | | |
| Multiracial | 4 | 2.3 | | | |
| Asian | 2 | 1.2 | | | |
| **Overall Medium Institution Sample** | | | | | |
| Gender | | | | | |
| Female | 196 | 78.1 | | | |
| Male | 49 | 19.5 | | | |
| Transgender/Gender nonconforming | 5 | 2 | | | |
| Prefer not to disclose | 1 | .4 | | | |
| Race/Ethnicity | | | | | |
| White | 202 | 80.5 | | | |
| Hispanic or Latino | 24 | 9.6 | | | |
| Black or African American | 13 | 5.2 | | | |
| Multiracial | 5 | 2 | | | |
| Asian | 3 | 1.2 | | | |
| Other | 2 | .8 | | | |
| American Indian or Alaska Native | 1 | .4 | | | |
| Native Hawaiian or Other Pacific Islander | 1 | .4 | | | |
| **Overall Large Institution Sample** | | | | | |
| Gender | | | | | |
| Female | 201 | 66.6 | | | |
| Male | 94 | 31.1 | | | |
| Transgender/Gender nonconforming | 4 | 1.3 | | | |
| Prefer not to disclose | 1 | .3 | | | |
| Prefer to self-describe | 1 | .3 | | | |
| Race/Ethnicity | | | | | |
| White | 254 | 84.1 | | | |
| Asian | 19 | 6.3 | | | |
| Hispanic or Latino | 8 | 2.6 | | | |
| Black or African American | 7 | 2.3 | | | |
| Other | 6 | 2.0 | | | |
| Multiracial | 4 | 1.3 | | | |
| American Indian or Alaska | 2 | .7 | | | |
| Native Hawaiian or Other Pacific Islander | 1 | .3 | | | |
| **Small Institution 1** | | | | | |
| Gender | | | | | |
| Female | 23 | 69.7 | | 737 | 51 |
| Male | 9 | 27.3 | | 707 | 49 |
| Prefer to self-describe | 1 | 3 | | | |
| Race/Ethnicity | | | | | |
| White | 29 | 87.9 | | 1042 | 72.2 |
| Hispanic or Latino | 2 | 6.1 | | 93 | 6.4 |
| Black or African American | 1 | 3 | | 76 | 5.3 |
| Multiracial | 1 | 3 | | 44 | 3 |
| **Small Institution 2** | | | | | |
| Gender | | | | | |
| Female | 4 | 80 | | 956 | 51.5 |
| Transgender/Gender nonconforming | 1 | 20 | | | |
| Race/Ethnicity | | | | | |
| White | 3 | 60 | | 617 | 33.3 |

(*Continued*)

**Table 1.** Continued.

| *Sample Characteristic* | *n* | % | *Population Characteristic* | *n* | % |
|---|---|---|---|---|---|
| Black or African American | 2 | 40 | | 524 | 28.2 |
| **Small Institution 3** | | | | | |
| Gender | | | | | |
| Female | 22 | 64.7 | | 1163 | 79.7 |
| Male | 12 | 35.3 | | 296 | 20.3 |
| Race/Ethnicity | | | | | |
| White | 30 | 88.2 | | 804 | 55.1 |
| Other | 2 | 5.9 | | | |
| Black or African American | 1 | 2.9 | | 176 | 12.1 |
| Hispanic or Latino | 1 | 2.9 | | 249 | 17.1 |
| **Small Institution 4** | | | | | |
| Gender | | | | | |
| Female | 18 | 72 | | 559 | 49.2 |
| Male | 6 | 24 | | 577 | 50.8 |
| Transgender/Gender nonconforming | 1 | 4 | | | |
| Race/Ethnicity | | | | | |
| White | 22 | 88 | | 901 | 79.3 |
| Multiracial | 2 | 8 | | 42 | 3.7 |
| Hispanic or Latino | 1 | 4 | | 36 | 3.2 |
| **Small Institution 5** | | | | | |
| Gender | | | | | |
| Female | 22 | 81.5 | | 966 | 62.1 |
| Male | 3 | 11.1 | | 589 | 37.9 |
| Transgender/Gender nonconforming | 2 | 7.4 | | | |
| Race/Ethnicity | | | | | |
| White | 23 | 85.2 | | 1076 | 69.2 |
| Other | 2 | 7.4 | | | |
| Asian | 1 | 3.7 | | 32 | 2.1 |
| Hispanic or Latino | 1 | 3.7 | | 146 | 9.4 |
| **Small Institution 6** | | | | | |
| Gender | | | | | |
| Female | 8 | 72.7 | | 2200 | 56.6 |
| Male | 2 | 18.2 | | 1689 | 43.4 |
| Prefer to self-describe | 1 | 9.1 | | | |
| Race/Ethnicity | | | | | |
| White | 10 | 90.9 | | 2542 | 65.4 |
| Black or African American | 1 | 9.1 | | 979 | 25.2 |
| **Small Institution 7** | | | | | |
| Gender | | | | | |
| Female | 6 | 75 | | 1248 | 58.3 |
| Male | 2 | 25 | | 894 | 41.7 |
| Race/Ethnicity | | | | | |
| Hispanic or Latino | 4 | 50 | | 1377 | 64.3 |
| White | 3 | 37.5 | | 486 | 22.7 |
| Black or African American | 1 | 12.5 | | 125 | 5.8 |
| **Small Institution 8** | | | | | |
| Gender | | | | | |
| Female | 7 | 41.2 | | 411 | 12.7 |
| Male | 10 | 58.8 | | 2822 | 87.3 |
| Race/Ethnicity | | | | | |
| White | 11 | 64.7 | | 2414 | 74.7 |
| Black or African American | 2 | 11.8 | | 296 | 9.2 |
| Other | 2 | 11.8 | | | |
| Asian | 1 | 5.9 | | 61 | 1.9 |
| Multiracial | 1 | 5.9 | | 151 | 4.7 |
| **Small Institution 9** | | | | | |
| Gender | | | | | |
| Female | 7 | 53.8 | | 904 | 52.8 |
| Male | 6 | 46.2 | | 808 | 47.2 |
| Race/Ethnicity | | | | | |
| White | 12 | 92.3 | | 1371 | 80 |
| Hispanic or Latino | 1 | 7.7 | | 63 | 3.7 |
| **Medium Institution 1** | | | | | |
| Gender | | | | | |
| Female | 22 | 75.9 | | 1920 | 51.1 |
| Male | 7 | 24.1 | | 1836 | 48.9 |
| Race/Ethnicity | | | | | |
| White | 23 | 79.3 | | 2695 | 71.8 |
| Asian | 2 | 6.9 | | 210 | 5.6 |
| Black or African American | 2 | 6.9 | | 141 | 3.8 |
| Hispanic or Latino | 1 | 3.4 | | 275 | 7.3 |
| Other | 1 | 3.4 | | | |
| **Medium Institution 2** | | | | | |
| Gender | | | | | |
| Female | 47 | 75.8 | | 2463 | 62.3 |

(*Continued*)

**Table 1.** Continued.

| *Sample Characteristic* | *n* | % | *Population Characteristic* | *n* | % |
|---|---|---|---|---|---|
| Male | 15 | 25.2 | | 1479 | 37.5 |
| Race/Ethnicity | | | | | |
| White | 48 | 77.4 | | 2602 | 66 |
| Hispanic or Latino | 6 | 9.7 | | 286 | 7.3 |
| Black or African American | 2 | 3.2 | | 171 | 4.3 |
| Multiracial | 2 | 3.2 | | 368 | 9.3 |
| American Indian or Alaska Native | 1 | 1.6 | | 13 | .03 |
| Asian | 1 | 1.6 | | 36 | .9 |
| Native Hawaiian or Other Pacific Islander | 1 | 1.6 | | 2 | <.01 |
| Other | 1 | 1.6 | | | |
| **Medium Institution 3** | | | | | |
| Gender | | | | | |
| Female | 24 | 82.8 | | 6494 | 58.6 |
| Male | 3 | 10.3 | | 4593 | 41.4 |
| Transgender/Gender nonconforming | 1 | 3.4 | | | |
| Prefer not to disclose | 1 | 3.4 | | | |
| Race/Ethnicity | | | | | |
| White | 28 | 96.6 | | 8940 | 80.6 |
| Black or African American | 1 | 3.4 | | 943 | 8.5 |
| **Medium Institution 4** | | | | | |
| Gender | | | | | |
| Female | 10 | 76.9 | | 2124 | 59.7 |
| Male | 1 | 7.7 | | 1436 | 40.3 |
| Transgender/Gender nonconforming | 2 | 15.4 | | | |
| Race/Ethnicity | | | | | |
| White | 9 | 69.2 | | 2224 | 62.5 |
| Black or African American | 3 | 23.1 | | 441 | 12.4 |
| Hispanic or Latino | 1 | 7.7 | | 531 | 14.9 |
| **Medium Institution 5** | | | | | |
| Gender | | | | | |
| Female | 37 | 71.2 | | 4981 | 47.4 |
| Male | 13 | 25 | | 5529 | 52.6 |
| Transgender/Gender nonconforming | 2 | 3.8 | | | |
| Race/Ethnicity | | | | | |
| White | 50 | 96.2 | | 8421 | 80.1 |
| Hispanic or Latino | 2 | 3.8 | | 420 | 4 |
| **Medium Institution 6** | | | | | |
| Gender | | | | | |
| Female | 56 | 84.8 | | 2350 | 65 |
| Male | 10 | 15.2 | | 1267 | 35 |
| Race/Ethnicity | | | | | |
| White | 44 | 66.7 | | 1996 | 55.2 |
| Hispanic or Latino | 14 | 21.2 | | 785 | 21.7 |
| Black or African American | 5 | 7.6 | | 508 | 14 |
| Multiracial | 3 | 4.5 | | 119 | 3.3 |
| **Large Institution 1** | | | | | |
| Gender | | | | | |
| Female | 85 | 66.9 | | 5667 | 43.4 |
| Male | 40 | 31.5 | | 7378 | 56.6 |
| Transgender/Gender nonconforming | 1 | .8 | | | |
| Prefer not to disclose | 1 | .8 | | | |
| Race/Ethnicity | | | | | |
| White | 114 | 89.8 | | 9676 | 74.2 |
| Hispanic or Latino | 4 | 3.1 | | 551 | 4.2 |
| Asian | 3 | 2.4 | | 253 | 1.9 |
| Black or African American | 2 | 1.6 | | 332 | 2.5 |
| Other | 2 | 1.6 | | | |
| American Indian or Alaska Native | 1 | .8 | | 159 | 1.2 |
| Native Hawaiian or Other Pacific Islander | 1 | .8 | | 8 | <.01 |
| **Large Institution 2** | | | | | |
| Gender | | | | | |
| Female | 52 | 59.8 | | 4762 | 44.8 |
| Male | 33 | 37.9 | | 5864 | 55.2 |
| Transgender/Gender nonconforming | 1 | 1.1 | | | |
| Prefer not to disclose | 1 | 1.1 | | | |
| Race/Ethnicity | | | | | |
| White | 73 | 83.9 | | 6962 | 65.5 |
| Black or African American | 5 | 5.7 | | 1602 | 15.1 |
| Asian | 4 | 4.6 | | 218 | 2.1 |
| Hispanic or Latino | 3 | 3.4 | | 988 | 9.3 |
| Other | 2 | 2.3 | | | |
| **Large Institution 3** | | | | | |
| Gender | | | | | |
| Female | 64 | 72.7 | | 17741 | 51.2 |
| Male | 21 | 23.9 | | 16899 | 48.8 |

(*Continued*)

**Table 1.** Continued.

| *Sample Characteristic* | *n* | % | *Population Characteristic* | *n* | % |
|---|---|---|---|---|---|
| Transgender/Gender nonconforming | 2 | 2.3 | | | |
| Race/Ethnicity | | | | | |
| White | 67 | 77 | | 23838 | 68.8 |
| Asian | 12 | 13.6 | | 2216 | 6.4 |
| Multiracial | 4 | 4.5 | | 1129 | 3.3 |
| Other | 2 | 2.3 | | | |
| American Indian or Alaska Native | 1 | 1.1 | | 68 | <.01 |
| Hispanic or Latino | 1 | 1.1 | | 1786 | 5.2 |

*Note*. Demographic data gathered by the National Center for Education Statistics uses a dichotomous variable of male and female to denote gender. However, male and female is commonly understood as sex assigned at birth rather than gender, which is much more complex and reflects social status, legal status, and societal expectations of behaviors, characteristics, and thoughts. The use of male and female therefore does not adequately capture the construct of gender, and primarily reflects sex assigned at birth.

**Table 2.** Descriptive Statistics from continuous measures.

| Measure | Mean | Std. Deviation | Range |
|---|---|---|---|
| FACES Total Ratio | 2.21 | .95 | .36-5.3 |
| Cohesion | 28.11 | 5.21 | 7-35 |
| Flexibility | 24.02 | 5.38 | 9-35 |
| Disengaged | 16.89 | 5.21 | 7-34 |
| Enmeshed | 15.88 | 3.43 | 7-31 |
| Rigid | 19.93 | 4.53 | 8-34 |
| Chaotic | 15.86 | 5.17 | 7-33 |
| TSBI Mean Total | 3.29 | 0.66 | 1.31-4.81 |
| MSPSS Mean Total | 5.54 | 1.08 | 1-7 |
| Significant Others | 5.6 | 1.47 | 1-7 |
| Family | 5.44 | 1.42 | 1-7 |
| Friends | 5.57 | 1.26 | 1-7 |
| MHC-SF Mean Total | 4.09 | 1.06 | 1.29-6 |
| Emotional | 4.48 | 1.11 | 1-6 |
| Social | 3.62 | 1.22 | 1-6 |
| Psychological | 4.28 | 1.14 | 1.67-6 |
| DASS-21 Mean Total | 1.95 | 0.64 | 1-3.95 |
| Depression | 1.88 | 0.78 | 1-7 |
| Anxiety | 1.77 | 0.67 | 1-7 |
| Stress | 2.18 | 0.7 | 1-7 |

**Table 3.** Correlations between FACES-IV subscales, TSBI, MSPSS, MHC-SF, and DASS-21.

| Measure | *1* | *2* | *3* | *4* | *5* | *6* | *7* | *8* |
|---|---|---|---|---|---|---|---|---|
| 1. Cohesion | – | | | | | | | |
| 2. Flexibility | .79** | – | | | | | | |
| 3. Disengaged | −0.82** | −0.64** | – | | | | | |
| 4. Chaotic | −0.56** | −0.62** | .51 | – | | | | |
| 5. TSBI | .29** | .3** | −0.21** | −0.28** | – | | | |
| 6. MSPSS | .61** | .58** | −0.48** | −0.33** | .41** | – | | |
| 7. MHC-SF | .48** | .48** | −0.4** | −0.33** | .64** | .65** | – | |
| 8. DASS-21 | −0.39** | −0.4** | .37** | .39** | −0.53** | −0.49** | −0.7** | – |

*Note*. Cohesion, Flexibility, Disengaged, and Chaotic subscale scores are from the FACES-IV = Family Adaptability and Cohesion Scale IV; TSBI = Texas Social Behavior Inventory; MSPSS = Multidimensional Scale of Perceived Social Support; MHC-SF = Mental Health Continuum Short Form; DASS-21 = Depression, Anxiety, and Stress Scale - 21.

**$p < .001$.

to analyze the total effect of FACES-IV ratio scores to predict MSPSS total scores. The linear composite of the FACES-IV ratio scores predicted 27% ($R = .52$, $R^2 = .27$) of the variance in MSPSS scores, $F(1, 724) = 262.23$, $p < .001$. Linear multiple regression was then used to analyze the direct effect of FACES-IV scores to predict TSBI scores, resulting in a significant model, $F(1, 724) = 96.69$, $p < .001$, predicting 12% ($R = .34$, $R^2 = .12$) of variance in TSBI scores. A third linear regression model was used to predict the direct effect of FACES-IV and TSBI scores on the MSPSS, resulting in 32% ($R = .57$, $R^2 = .32$) of variance predicted in MSPSS scores, $F(2, 723) = 172.11$, $p < .001$. Unstandardized beta coefficients and standard errors from the first model predicting MSPSS total scores using FACES-IV total ratio scores ($B = 3.81$, $SE = .39$) and from the third model predicting MSPSS total scores using TSBI scores ($B = .03$, $SE = <.01$) were used to conduct a Sobel test, which estimates the statistical significance of indirect effect in mediation analysis. The Sobel test resulted in a significant test statistic of 6.99, $SE = 0.2$, $p < .001$, indicating a significant mediation effect of the TSBI with a point estimate of 0.11.

## Discussion

The present study sought to explore the relationship between self-reported family functioning, social competence, perceived social support, and mental among a large, random sample of college students. The small and medium positive

**Table 4.** Summary of multiple regression model predicting MHC-SF scores.

| Variable | *B* | *SE* | *β* | *t* | *p* | *Lower CI* | *Upper CI* |
|---|---|---|---|---|---|---|---|
| Cohesion (FACES-IV) | −0.02 | .16 | −0.01 | −0.13 | .9 | −0.33 | .29 |
| Flexibility (FACES-IV) | .46 | .12 | .17 | 3.75 | .001** | .22 | .7 |
| Disengaged (FACES-IV) | .1 | .12 | .04 | .82 | .42 | −0.14 | .34 |
| Chaotic (FACES-IV) | −0.03 | .1 | −0.01 | −0.28 | .78 | −0.22 | .17 |
| TSBI Total | .59 | .04 | .42 | 14.79 | .001** | .52 | .67 |
| Significant Other (MSPSS) | 1.21 | .31 | .12 | 3.86 | .001** | .59 | 1.82 |
| Family (MSPSS) | 1.65 | .48 | .16 | 3.4 | .001* | .7 | 2.6 |
| Friends (MSPSS) | 2.19 | .37 | .19 | 5.96 | .001** | 1.47 | 2.91 |

*Note.* * = $p < .05$; ** = $p < .001$; *SE* = Standard error of the coefficient.

| Variable | *B* | *SE* | *β* | *t* | *p* | *Lower CI* | *Upper CI* |
|---|---|---|---|---|---|---|---|
| Cohesion (FACES-IV) | .33 | .17 | .13 | 1.96 | .05 | −0.001 | .66 |
| Flexibility (FACES-IV) | −0.13 | .13 | −0.05 | −0.95 | .35 | −0.38 | .13 |
| Disengaged (FACES-IV) | .29 | .13 | .11 | 2.18 | .03* | .03 | .54 |
| Chaotic (FACES-IV) | .32 | .11 | .12 | 2.97 | .003* | .11 | .53 |
| TSBI Total | −0.45 | .04 | −0.35 | −10.38 | .001** | −0.54 | −0.37 |
| Significant Other (MSPSS) | .14 | .34 | .02 | .41 | .69 | −0.53 | .8 |
| Family (MSPSS) | −1.49 | .52 | −0.16 | −2.84 | .005* | −2.51 | −0.46 |
| Friends (MSPSS) | −1.58 | .4 | −0.15 | −3.98 | .001** | −2.34 | −0.8 |

Summary of Multiple Regression Model Predicting DASS-21 Scores.
*Note.* * = $p < .05$; ** = $p < .001$; *SE* = Standard error of the coefficient.

correlations found between balanced levels of family functioning (i.e., flexibility and cohesion subscales of FACES-IV) and social competence supports the theory that relationships within the family may influence students' perception of their confidence in adjusting socially to college.[35] Similarly, the medium positive correlation between balanced aspects of family functioning and well-being and the medium negative correlation between balanced aspects of family functioning and symptoms of depression, anxiety, and stress support the theory that balanced family functioning may be related to psychological well-being[15] and related constructs, including self-esteem,[30] and a lowered propensity for developing symptoms of psychological distress.[31]

A large, positive correlation was also found between balanced levels of family functioning and social support, a finding that supports past studies in which higher levels of family functioning were found to correlate with levels of family social support.[54] The correlation may also be partially explained by the inclusion of a family support subscale in the MSPSS. A second large, positive correlation was also found between levels of social support and well-being, which supports the general benefits model of social support posited by Cohen.[39] Given the bidirectionality of these correlations, it could be that social support also supports adaptability and cohesion in the family or that well-being supports the efforts of students to build networks of social support.

Along with positive correlations, a medium negative correlation was found between levels of social support and symptoms of depression, anxiety, and stress, supporting the theory that lowered levels of social support can increase the propensity to develop such symptoms among college students.[22,42] A large negative correlation was also found between symptoms of depression, anxiety, stress, and well-being, highlighting the spectrum of psychological symptomatology to psychological wellness. Furthermore, a large negative correlation was found between symptoms of depression, anxiety, and stress and social competence, supporting the correlations that have been found between social competence and depression[55] and social competence and anxiety[56] in the extant literature.

To further understand the ability of social variables (i.e., family functioning, social competence, social support) to predict mental health, a linear multiple regression was run using social variables (i.e., FACES-IV subscales, TSBI total score, MSPSS subscales) as independent variables and mental health variables (i.e., well-being as measured by MHC-SF, symptomatology as measured by DASS-21) as outcomes. Social variables positively predicted 54% of the variance in well-being, with social competence being the strongest predictor, followed by social support from friends, flexible family functioning, social support from family, and social support from significant other. The large predictive effect[57] of the independent variables supports the findings of an association between social support and well-being,[22] balanced family functioning and well-being,[15] and social competence and well-being.[34] Furthermore, the large effect further supports the GB model of social support posited by Cohen.[39]

Inversely, social variables predicted 34% of the variance in levels of depression, anxiety, and stress, with social competence being the strongest predictor, followed by social support from family, social support from friends, chaotic family functioning, and disengaged family functioning. The medium negative predictive effect[57] of social variables supports the idea that lower social competence, low perceived levels of social support, or unbalanced family functioning may increase the propensity to develop psychological symptoms.[30,41] Though less predictive than the association between social variables and well-being, the association between perceived social support and symptoms may reinforce the stress-buffering model of social support, the idea that those with limited social support are impacted more by stress than those with adequate support.[39]

Finally, social competence mediated the relationship between family functioning and social support. This finding supported previous findings in the literature of relationships between family functioning and social comptence[33,34] and

the relationship between social competence and social support.[35,36]Given that families often model social skills and prosocial behaviors for children, this finding may support a phenomenon in which family functioning influences social competence for college students, which in turn influences students' ability to elicit social support from others.

### Implications

The findings of this study yield several possible recommendations for practice in the mental health field. The primary recommendation is that mental health practitioners on college campuses should consider the impact that social competence, social support, and family functioning have on students' mental health. Many practitioners working in the college setting have likely heard about and addressed issues related to these constructs, as such issues have shown to be prevalent among student populations.[8]Furthermore, recent findings that college students' social interactions were positively associated with well-being and negatively associated with symptoms of depression and anxiety during the COVID-19 pandemic further supports the importance of social factors on mental health throughout the changing contexts and landscapes of higher education.[9]

Given this recommendation, finding that social competence and social support were most predictive of mental health, and the finding that social competence mediated the relationship between family functioning and social support, mental health practitioners working with college students may benefit from utilizing therapeutic techniques or treatments that assist students in building their social competence or utilizing social support. Examples of such interventions include: (a) role-playing with students during an individual session to work on interpersonal assertiveness and communication, (b) facilitating interpersonal process or support groups to encourage improvements in social competence and the creation of new social supports among students, and (c) developing or utilizing programs that encourage peer social support networks regarding mental health issues.[58] Interventions facilitating social competence and subsequent social support from family, friends, and significant others should be a primary consideration, given these were the strongest predictors of well-being and mental health symptomatology.[59]

Practitioners may also benefit from working directly with students and their families to improve family functioning, as improved family functioning may influence mental health symptomatology among students. Furthermore, students identify family problems as a primary presenting concern in college counseling centers,[8] thus indicating family as a potential area for intervention regarding students seeking out mental health services on campus. Haber and Merck[23] encouraged mental health practitioners on college campuses to use students' families as a resource in mental health treatment. Specifically, practitioners can work with students and their families to resolve family issues and facilitate emotional support of the student from family members when clinically indicated.

### Limitations

The findings and implications of this study must be considered considering the study's limitations. One limitation of the current study was the lack of reliability of the FACES-IV enmeshment and rigidity subscales, which the researcher attempted to account for by excluding these variables from the analysis. However, excluding these subscales also reduced the overall construct validity of the FACES-IV, resulting in a less nuanced measure of family functioning. A second limitation pertains to the generalizability of the sample. Although random sampling procedures were used to select institutions, a low response rate may have resulted in response bias, thus inviting the risk that students may not have been representative of their specific institution or the broader landscape of higher education. Furthermore, the generalizability of the sample may be confounded due to the inclusion criteria for institutions and the limited number of institutions being sampled. The sample was a convenience sample in that only institutions that were willing to provide contact data about their students were included in the study. Furthermore, generalizability of the sample was impacted by the homogeneity of the sample, which was primarily female and white. A third limitation was the cross-sectional design, making causation difficult to imply. For example, participants with mental health difficulties may be more likely to perceive their social support as limited rather than limited social support leading to mental health difficulties.

Based on the limitations and findings of this study, several recommendations exist for future research. Although acceptable reliability was indicated with the FACES-IV overall, low reliability in the enmeshment and rigidity subscales suggest that this measure may need further development to accurately measure family functioning among college students. Researchers may benefit from utilizing a more reliable and valid instrument measuring family functioning, such as the Systemic Clinical Outcome and Routine Evaluation (SCORE),[60] which has demonstrated adequate to excellent reliability as well as a stable factor structure. However, the SCORE was not utilized in this study as it is designed for measuring aspects of family life that are relevant to the need for therapy and therapeutic change, while the FACES-IV measures general aspects of family functioning relevant to clinical and non-clinical populations.

Future research examining the influence of family functioning, social support, and social competence on college students' mental health may also benefit from utilizing different samples, methodologies, analyses, and different but related constructs (e.g., social connectedness). Although large and heterogeneous in terms of geographic location and institution, the sample in this study was relatively homogenous regarding gender and ethnicity. Purposive sampling of minority populations may provide a more representative sample and help researchers understand differences across the study variables regarding ethnicity. Future studies with a more purposeful sampling of minority groups should also be intentional in considering cultural norms and differences related to family structure and family functioning. Through

efforts to create a more diverse and representative sample, findings of future studies can be more generalizable to the larger population of college students.

Along with utilizing a more diverse sample, researchers might apply different research methodologies to further examine how family functioning, social support, and social competence influence students' mental health differentially. Qualitative phenomenological or narrative research approaches might serve to increase our understanding of how students experience family functioning, social competence, and social support while attending college. Researchers may also be able to support causal inferences by utilizing longitudinal studies which measure how students' family functioning influences social competence, social support, and mental health over time.

## Conclusion

The prevalence and severity of mental health problems have been increasing in recent years among college students in the United States.[2] A review of the literature supports associations between the mental health of college students and the constructs of family functioning,[15] social competence,[35] and social support.[22] However, these variables have never been examined together regarding their ability to predict mental health outcomes. The findings of this study provide initial evidence that students' family functioning, social competence, and social support are variables related to their mental health. The findings of the current study suggest that researchers and practitioners should continue to consider the impact of students' families and social networks on their mental health while attending college.

## Conflict of interest disclosure

The authors have no conflicts of interest to report. The authors confirm that the research presented in this article met the ethical guidelines, including adherence to the legal requirements, of the United States of America and received approval from the Institutional Review Board of William & Mary.

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