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RESEARCH ARTICLE

Associations among stress, gender, sources of social support, and health in emerging adults

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Abstract

This study aimed to examine how sources of social support intersect with stress and health by testing two theoretical models. Three relationship-specific sources of social support (family, friends, and romantic partners) and two health indicators (self-rated physical health and depressive symptoms) were investigated. The sample consisted of 636 emerging adults attending college (age range: 18–25). Results suggest that only support from family was a stress-buffer, in that it buffered the adverse association between stress and depressive symptoms. Holding stress constant, only support from family was related to self-rated physical health and only support from friends or romantic partners was associated with depressive symptoms. There were no gender differences in the mean levels of self-rated physical health and depressive symptoms. However, gender moderations were found, in that the positive relationship between friends support and physical health was observed only in women, that the association between friends support and depressive symptoms was greater in men than in women, and that family support buffered the negative relationship between stress and physical health only in men. Findings of this study suggest that the associations among stress, social support, and health vary by the sources of support, the health outcome, and gender.

KEYWORDS

emerging adulthood, gender, health, sources of social support, stress

1 | INTRODUCTION

The number of people going to college has increased substantially in recent decades, yet the percentage of students graduating within a reasonable timeframe remains low (National Center for Education Statistics, 2011). For some, such hampered academic success may result from poor adjustment and associated psychological and physical health concerns, all of which may stem from (and also exacerbate) substantial stress (Pritchard & Wilson, 2003; Ruthig, Marrone, Hladkyj, & Robinson-Epp, 2011). Indeed, many traditional college students, who occupy the developmental stage of so-called "emerging adulthood" (Arnett, 2015a), encounter a variety of stressors, such as academic struggles, financial pressure, social strain, and increasing uncertainty for the future (Hurst, Baranik, & Daniel, 2013). When such stressors accumulate, the magnitude of stress perceived or experienced by these emerging adults often escalates (Price & Price, 2010), resulting in heightened vulnerability to physical and/or psychological health concerns (Gress-Smith, Roubinov, Andreotti, Compas, & Luecken, 2015; Orucu & Demir, 2009; Simon & Barrett, 2010). While probably not surprising, it is distressing that recent surveys have reported increased depressive symptoms and depression diagnoses among college-attending young adults (American College Health Association, 2014; Furr, Westefeld, McConnell, & Jenkins, 2001; Gress-Smith et al., 2015). Even more alarming is that depression is a strong predictor of suicide (Haas, Hendin, & Mann, 2003), which is the second leading cause of death among college students (Floyd, Mimms, & Yelding, 2007).

The role of social support as an influence on individuals' well-being has been widely documented. For example, there is strong evidence that social support may benefit individuals by promoting their physical and psychological health (Kuwert, Knaevelsrud, & Pietrzak, 2014; Kwag, Martin, Russell, Franke, & Kohut, 2011; Needham, 2008; Pettit, Roberts, Lewinsohn, Seeley, & Yaroslavsky, 2011; Thoits, 2011). (It should be noted that most of this research approaches quantity [number of supporters] and quality of this support [how the support is experienced by the individual perceiving it] to be closely associated.) Theoretical approaches have been proposed to explain the relationships among stress, social support, and health, including the stress-buffering model, which suggests that social support improves health

by reducing the negative effects of stress, and the independent model, which proposes that social support and stress impact health in opposite directions independently (Ensel & Lin, 1991; Lakey & Cohen, 2000). However, efforts to empirically examine these theoretical models have yielded mixed results. Furthermore, most of this research has focused on adolescents, with less attention given to emerging adults (Pettit et al., 2011).

Most social support research has assessed its aggregate indices (i.e., general or global social support) without attending to its particular sources (e.g., support derived from a specific relationship). However, research on sources of support is essential (Raffaelli et al., 2013; Uchino, 2009), because various sources may exert their influences on individuals in distinct ways, under different circumstances, and/or on different aspects of their well-being, including health (Segrin, 2003; Sheets & Mohr, 2009). For example, differential effects of diverse sources of support (e.g., family vs. friends) on depressive symptoms may result from differences in the nature of the relationship and the extent of closeness between support providers and recipients (Pettit et al., 2011). Different sources of social support may also serve distinct functions during different life stages (Sheets & Mohr, 2009) via an interplay of developmental trajectories and social pathways (Elder, 1998; Meadows, Brown, & Elder, 2006). By emphasizing contexts (Wheaton & Clarke, 2003), the life course perspective suggests that as individuals transition across life stages, both social support and stress may change, and the salience of a given relationship often evolves, leading to differential impacts of support on health outcomes (Umberson, Crosnoe, & Reczek, 2010).

As an example of the differential and evolving impact of particular sources of social support, it has been argued that social support from family members is less effective than support from friends at reducing psychosocial distress for emerging or young adults than for adolescents (Segrin, 2003). Research has further suggested that as individuals move into emerging adulthood, peer and/or intimate partner support may become more common and important (Arnett, 2015b), and begin to usurp the function of family support (Meadows et al., 2006; Qualter et al., 2015). However, there is substantial evidence indicating that support from parents or family remains influential in promoting emerging adults' adjustment and well-being, including their health (Lee, Dik, Barbara, 2016; Mounts, Valentiner, Anderson, & Boswell, 2006; Weinstein, Mermelstein, Hedeker, Hankin, & Flay, 2006). Therefore, using a large sample of college-attending emerging adults and testing two theoretical approaches (i.e., the stress-buffering model and the independent model), this study aimed to further explain the role of particular sources of support in the association between stress and both physical and psychological health. While not necessarily competing (i.e., each may hold some validity simultaneously), these theories help elucidate the role that relationship-specific sources of support may play in the link between stress and health.

2 | BUFFERING ROLE OF SOURCES OF SOCIAL SUPPORT ON STRESS AND HEALTH

The stress-buffering model suggests that social support may help individuals maintain or regain strengths, particularly when under stress, thereby decreasing the potentially detrimental consequences that stress might have contributed otherwise (Ensel & Lin, 1991; Lakey & Cohen, 2000; Thoits, 2011). In other words, social support may function as a buffer to mitigate the pathogenic effects of stress (Uchino, 2009). However, most of the stress-health research with adults or young adults/late adolescents suggesting such buffering effects has focused on global social support (e.g., Chou, 2012; Raffaelli et al., 2013), leaving it far from clear whether the stress-buffering role of social support varies by its source (Sangalang & Gee, 2012).

Given the assertion that general social support and support from particular sources are overlapping yet distinct constructs (Pierce, Sarason, & Sarason, 1991), it is tenable that the stress-buffering effect of social support may vary by the particular sources of support. For example, a few studies have found that family support, but not friends support, buffers the negative effects of stress on physical health (Zaleski, Levey-Thors, & Schiaffino, 1998) and depressive symptoms (Crockett et al., 2007; Meadows et al., 2006) among college students and young adults. However, other research has suggested that neither family nor friends support is a buffer in the stress-health relationship (Rivera, 2007; Rodriguez, Mira, Morris, & Cardoza, 2003). Furthermore, although limited, research (mostly using non-student adult samples) focusing on support from one's romantic partner has consistently failed to find its stress-buffering effect on physical or psychological (e.g., depression) health (e.g., Cranford, 2004; Ostrowski, 2009; Roxburgh, 2004). To summarize, social support does not appear equally helpful across its sources (providers) in buffering the adverse impacts of stress on health (Thoits, 2011) for college students or non-student adults, although the very small volume of research addressing this question requires that this conclusion be held tentatively.

3 | INDEPENDENT ASSOCIATIONS OF SOURCES OF SOCIAL SUPPORT WITH HEALTH

The research literature has consistently reported a strong relationship between stress and health, suggesting a detrimental impact of stress for college students and other adults (Gayman, Brown, & Cui, 2011; Gress-Smith et al., 2015). Numerous studies have suggested that social support is positively associated with health (Kwag et al., 2011; Raffaelli et al., 2013). The independent model proposed by Ensel and Lin (1991) posits that irrespective of one's stress level, social support may offer benefits through promoting health, or safeguarding against health problems or psychological distress by providing positive affect, material resources, and/or a recognition of self-worth (Lakey & Cohen, 2000; Rose & Rudolph, 2006). Wheaton (1985) further found social support to function as an independent distress deterrent. Conversely, lack of social support may increase the likelihood of distress, for example, by developing physical and/or mental health problems among individuals (Bouteyre, Maurel, & Bernaud, 2007; Segrin, 2003).

As is the case with research testing the stress-buffering model addressed above, research testing the independent model has mostly focused on global social support. This has served as an important starting point, but it overlooks the possibly unique contributions of specific sources of support (e.g., Finch & Vega, 2003 [with a sample

of adults, age 18–59]; Kopp, Stauder, Purebl, Janszky, & Skrabski, 2007 [adults; 18–65]). As a result, less is known about how the relationship between social support, and health may differ across different sources of support with stress held constant. Of the few investigations to examine whether the strength of the relationship between social support and health varied as a function of the source of support, most compared family support with peer/friends support, yielding mixed results. For instance, Winefield, Winefield, and Tiggermann (1992) found in their sample of young adults that regardless of stress levels, support from family or parents, but not from friends or peers, is associated with reduced depressive affect. However, the reverse has also been found (e.g., Rodriguez et al., 2003), with some studies of adolescents reporting that family and friends support predicted lower depressed mood (e.g., Aseltine & Gore, 1993; Garnefski, 2000). Still other studies have found that neither source of support predicted physical health (e.g., Zaleski et al., 1998 [with a sample of college students]). Studies investigating family support alone have found it to negatively predict depressive symptoms (Rivera, 2007), yet curiously little is known about how support from one's romantic partner is associated with health among emerging adults, with stress held constant (Barr, Culatta, & Simons, 2013; Simon & Barrett, 2010). This is surprising, given the developmental importance for emerging adults of establishing and maintaining romantic relationships (Arnett, 2015b), and the presumed status of intimate partners as an important source of social support (Mikulincer & Shaver, 2009). One may expect that when an emerging adult perceives higher levels of support from a romantic partner, his or her existing identity, self-concept, and self-worth are likely to be bolstered, which in turn may promote health (Simon & Barrett, 2010). Clearly, further research exploration is warranted.

4 | GENDER DIFFERENCES

Gender differences on individual health have been well documented. Research has generally suggested that compared to men, women appear to struggle with more health problems, evidenced by their lower ratings of subjective health (e.g., Prus, 2011; Rollero, Gattino, & Piccoli, 2014), and more depressive symptoms or higher rates of being diagnosed with depression (e.g., Lamis & Lester, 2013; Mezo & Baker, 2012). However, research with young adult samples have yielded mixed results. While some studies reported gender differences in that poorer physical or psychological health was observed in women than in men (e.g., Lamis & Lester, 2013; Pettit et al., 2011; Rivera, 2007), others found no such gender differences among college students (e.g., Hale, Hannum, & Espelage, 2005; Mounts, 2004). Other research has found that women overall perceive higher levels of global social support than men during late adolescence and young adulthood (Adamczyk & Segrin, 2015; Campos, Ullman, Aguilera, & Schetter, 2014; Galambos, Leadbeater & Barker, 2004). In a similar vein, gender differences have been reported in the sources of social support, with more complicated associations than those found for global social support. Specifically, most research reported no gender difference on perceived family support (Kendler, Myers, & Prescott, 2005; Lamis & Lester, 2013), with at least one exception in that young adult women perceived higher family support than their male counterparts (i.e., Pettit et al., 2011). In contrast, women in general perceived more support from peers or friends (Kendler et al., 2005; Lamis & Lester, 2013; Pettit et al., 2011) and romantic partners (Lamis & Lester, 2013) than did men.

In recent years, increased attention has been directed toward the question of whether the relationship between social support and health may vary by gender (i.e., gender as a moderator). Most of these studies have focused on global social support and the results have been inconsistent (Gadalla, 2009; Galambos, Barker, & Krahn, 2006; Haines, Beggs, & Hurlbert, 2008). These moderator studies have seldom examined particular sources of support, limiting our understanding of whether there are gender differences in the relationships between various sources of social support and health. Although they seem to benefit more from higher social support (Morrison, 2009), women also tend to suffer more when such support is lacking (Crevier, Marchand, Nachar, & Guay, 2014; Sifers, 2011). Thus, would perceiving lower levels of support from family, friends, or romantic partners lead to poorer health (e.g., decreases in physical health and increases in depressive symptoms) in women than in men? Very few studies have attempted to examine such moderation effects, and their results have been mixed. Some have found that the relationships between family or parental support and health, such as physical health (Almgren, Magarati, & Mogford, 2009) and depressive symptoms (Kendler et al., 2005; Kerr, Preuss, & King, 2006; Needham, 2008; Pettit et al., 2011), are greater for women than for men and that friends support is associated with depressive symptoms only for men (Kerr et al., 2006). However, other studies have found no gender differences in the associations of relationship-specific sources of support with depression (e.g., Hann et al., 2002; Sangalang & Gee, 2012). It is worth noting that most of the studies assessing the gender moderation effects did not consider stress, although research has suggested gender differences in how one's stress response is associated with health (Hammen, 2005; Mezo & Baker, 2012). Maciejewski, Prigerson, and Mazure (2001), for example, found that compared to men, women are more likely to be depressed in response to stressors.

Finally, there have also been very few studies examining whether the stress-buffering effect of relationship-specific sources of support on health may vary by gender. In an early study investigating this question, Wohlgemuth and Betz (1991) examined whether the stress-buffering role of family support on physical symptoms would differ by gender; later, Roxburgh (2004) assessed whether the buffering effect of partner and coworker social supports on the adverse association between time pressure and depression would vary by gender. Although more research is needed to replicate these two studies, both provided evidence for a three-way interaction (i.e., gender × stress × source of support). However, they reported opposite directions for the gender difference. Specifically, using young adults (i.e., traditional college students), Wohlgemuth and Betz (1991) found that for women, perceiving lower levels of family support were associated with higher levels of physical symptoms regardless of stress levels, but with higher levels of family support, stress was linearly related to physical symptoms. However, this moderation effect was not found among men in their study. In contrast, Roxburgh (2004) using adult samples (ages 18–70) and found that coworker social

support moderated the impact of time pressure on depression only for men. Although their findings seem contradictory, these two studies focused on different sources of social support and different health outcomes, implying that the role of gender in the stress-buffering effect of social support on health may depend on the particular source of support and health indicators under investigation (Johnson et al., 2011).

This study extends the research on the relative effectiveness among three relationship-specific sources of support (family, friends, and romantic partners) in the stress-health relationship (i.e., a buffer and a distress deterrent) by tapping both physical and psychological health outcomes to capture diverse aspects of individual well-being (Barr et al., 2013). Fewer studies have contrasted the influence of different sources of support on health simultaneously (Uchino, 2009). Furthermore, gender differences were considered in the mean levels of health outcomes and how they might alter the associations between stress, particular sources of social support, and health. Also, instead of focusing on individuals' exposure to stressful events, our emphasis is on perceived stress, building on the cognitive-transactional model of stress (Lazarus & Launier, 1978). This model postulates that individuals perceive they are under stress when the environmental demands tax or exceed their adaptive capacities, particularly after their subjective evaluations of available coping resources (Cohen, Kessler, & Underwood-Gordon, 1995; Orucu & Demir, 2009; Probst, 2011). Following the life course perspective that emphasizes contexts where individuals are embedded, along with the two theoretical models and previous research results presented above, we have four hypotheses. First, we hypothesize that the buffering role of social support in the relationship between perceived stress and both physical and psychological health differs across its particular sources (H1). Second, we hypothesize that the association of social support with physical and psychological health varies by its sources, regardless of the perceived levels of stress (H2). Third, we hypothesize that there are gender differences in the mean levels of physical and psychological health (H3). Fourth, we hypothesize that gender moderates the relationships between particular sources of support and health with and without stress considered (H4). Given the relatively limited research base to date, yielding largely mixed results, we refrained from directional hypotheses and approach the direction of these differences as an open research question.

5 | METHOD

5.1 | Participants

The sample consisted of 636 undergraduate students from a midsized public university in the Northeast of the United States. Most respondents (80%) were women. The average age was 19.8 years (*SD* = 1.5; Range = 18–25), with 36.8% self-identifying as freshmen, 22.6% as sophomores, 25.2% as juniors, and 15.1% as seniors. About half of the participants (53%) self-identified as White, 21.7% as Hispanic, 13.4% as Black or African-American, 3.6% as Asian-American, 6.4% as multiracial, and 1.9% as other. The range and proportions of the ethnicities or racial identities are representative of the campus where the study was conducted.

5.2 | Procedure

Participants were recruited in a variety of ways, including email, flyers, word of mouth, in classrooms, at the student center, and at student organization meetings. They were offered a $5 incentive for completing the survey. After providing informed consent, they were administered a survey that included demographic questions and the following measurement instruments. All data were collected in person. All procedures were approved by the university's Institutional Review Board (IRB).

5.3 | Measures

5.3.1 | Perceived stress

Perceived stress was assessed by the 10-item shorter version of the Perceived Stress Scale (PSS-10; Cohen & Williamson, 1988). The scale was designed to measure the degree to which situations in an individual's life are appraised as stressful. Using an adult sample, Cohen and Williamson (1988) found that the PSS-10 had adequate psychometric qualities (e.g., internal reliability with a coefficient alpha of .78 and concurrent validity via a positive correlation with a life-events scale and negative correlation with self-reported physical health), and measured a different and independently predictive construct, despite its high correlation with depressive symptomology (Orucu & Demir, 2009). The respondents were asked to indicate, using a 5-point scale (0 = *never*, 4 = *very often*), how often in the last month they felt or thought a certain way, such as being upset because something that happened unexpectedly, being unable to control the important things in their lives, and difficulties piling up so high that they could not overcome them. Mean ratings of the 10 item responses were used, with higher scores indicating higher levels of perceived stress. For scores obtained with the present sample, Cronbach's α was .81.

5.3.2 | Social support

Social support was measured by the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988). The MSPSS consists of 12 items assessing three particular sources of social support: family, friends, and romantic partners (i.e., four items per source of support). Zimet et al. (1988) used undergraduate students in their study, reporting coefficient alphas of .87, .85, and .91 for the support subscales of family, friends, and romantic partners, respectively. Test-retest reliabilities over a 2- to 3-month interval were .85, .75, and .72 for scores on the support subscales of family, friends, and romantic partners, respectively. Construct validity of the scale has been established in the study through its negative correlations with depression and anxiety symptomatology measured by the Hopkins Symptom Checklist (Derogatis, Lipman, Rickels, Uhlenluth, & Covi, 1974). The respondents indicated the extent to which they agreed with each statement using a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*). Sample items include, "I get the emotional help and support I need from my family" (support from family), "I can count on my friends when things go wrong" (support from friends), and "There is a special person with whom I can share my joys and sorrows" (support from romantic partners). The mean scores of each subscale for the source of support were calculated, with

higher mean scores on each subscale indicating higher levels of particular sources of support, respectively. Cronbach's αs for this study were .92, .93, and .93 for scores on the support subscales of family, friends, and romantic partners, respectively.

5.3.3 | Physical health

Physical health was assessed by presenting participants with a single item: "In general, would you say your health is:" (1 = *poor*, 5 = *excellent*). Such single item scales have long and commonly been used to measure individuals' physical heath (e.g., Barr et al., 2013; Erlandsson, Bjorkelund, Lissner, & Hakansson, 2010; Prus, 2011; Rollero et al., 2014). Evidence for validity of its scores has been established through high correlations with physician ratings of health, immune system functioning, and mortality (Christian et al., 2011; Idler & Benyamini, 1997; Zheng & Thomas, 2013).

5.3.4 | Psychological health

Psychological health concerning depressive symptoms was measured by the 20-item Center for Epidemiologic Studies-Depression (CES-D) Scale (Radloff, 1977). The widely used scale was developed to screen for depressive symptomology in nonclinical populations and found more sensitive than the Beck Depression Inventory to variability in depressive severity among college students (Santor, Zuroff, Ramsay, Cervantes, & Palacios, 1995). Participants were asked to indicate how often they might have felt each of the 20 ways listed within the past week, including "I felt sad" and "I had crying spells" (1 = *rarely or none of the time*, 2 = *some or little of the time*, 3 = *occasionally or a moderate amount of time*, 4 = *most or all of the time*). Mean ratings of the 20 item responses were used, with higher scores indicating more depressive symptoms. Radloff (1977) reported a coefficient alpha of .85 for scores obtained on the scale using nonclinical samples, indicating adequate reliability. Convergent validity of scale scores was supported by its positive correlations with scores on other depression scales, such as the SCL-90 (Derogatis, Lipman, & Covi, 1973). Cronbach's α for scores in the present study was .90.

5.4 | Analysis strategy

Using a series of multiple regression analyses, we tested the stress-buffering models (H1), the independent models (H2), and possible gender differences in the associations between stress, social support, and health (i.e., gender moderations; H4). Specifically, we tested the multiple-moderator models, examining whether any particular relationship-specific source of support (family, friends, and romantic partners) would moderate the relationship between stress and health. Holding perceived stress constant, we analyzed the relative effectiveness of the three specific sources of support in promoting health by considering them in one model. We tested whether gender would moderate the relationship between each particular source of support and each health outcome, and whether any buffering role of each relationship-specific source of support would vary by gender (i.e., testing the three-way interaction or moderated moderation effect). For all moderation analyses, when significant results were found indicating moderation effects, we followed the guideline provided by Aiken and West (1991) to interpret the moderation. Independent *t*-tests were used to examine the gender differences in the mean levels of both health outcomes (H3).

Table 1 presents the correlation matrix with means and standard deviations for the focal predictors, moderator variables, and criterion variables in the study. Ethnicity was considered as covariate in the regression analyses on depressive symptoms to adjust for possible confounder effects, given their correlation with each other based on our preliminary analysis results. Specifically, we found that Asian-American young adults displayed more depressive symptoms than non-Hispanic White, Hispanic, or other, and that Blacks or African-Americans reported more depressive symptoms than non-Hispanic Whites.

6 | RESULTS

Results for the stress-buffering models showed that among the three relationship-specific sources, marginal significance was found in that support from family moderated the relationship between perceived stress and depressive symptoms (B = −.04, SE = .02, β = −.34, p = .07), whereas none of the other two sources of support moderated the relationship. We found that the adverse relationship between perceived stress and depressive symptoms was greater in individuals with lower family support than those with higher family support.

In terms of the independent model, the results showed that when perceived stress was held constant, among the three sources of support, only support from family was positively related to self-rated physical health (B = .15, SE = .03, β = .23, p < .001, 95% CI [.09, .21]), and only supports from friends and romantic partners were negatively associated with depressive symptoms (Bs = −.03 and −.07, SEs = .02 and .02, βs = −.07 and −.17, ps = .04 and < .001, 95% CIs [−.07, −.001] and [−.11, −.04], respectively).

The results showed no gender differences in the mean levels of self-rated physical health (range: 1–5), M_{men} = 4.15, SD_{men} = .87, M_{women} = 4.05, SD_{women} = .88, $t(627)$ = 1.19, p = .24, 95% CI [−.07, .28] or depressive symptoms (range: 1–3.6), M_{men} = 1.85, SD_{men} = .57, M_{women} = 1.83, SD_{women} = .57, $t(631)$ = .35, p = .73, 95% CI [−.09, .13]. Tables 2 and 3 present the results for the moderating role of gender in the relationships between sources of social support and health outcomes. As indicated, gender moderated the associations between friends support and physical health (B = .16, SE = .07, β = .64, p = .02, 95% CI [.03, .29]), as well as depressive symptoms (B = .07, SE = .04, β = .42, p = .052, 95% CI [.00, .14]). That is, friends support and physical health were positively associated for women, but not for men. In contrast, the negative association between friends support and depressive symptoms was greater in emerging adult men than in women. Gender did not moderate how family or romantic partner support was related to either health outcome. Finally, the results showed that the stress-buffering effect of family support on health varied by gender (B = −.19, SE = .10, β = −2.62, p = .045, 95% CI [−.38, −.01]). For emerging adult men, family support buffered the adverse association of stress with physical health, in which the negative association was greater when they perceived lower levels of family support, whereas for women, family support did not buffer the association (see Figure 1).

TABLE 1 Means, standard deviations (SDs), and intercorrelations among study variables (N = 636)

	1.	2.	3.	4.	5.	6.	7.
1. Gender	—						
2. Perceived stress	.16*	—					
3. Family support	.21*	-.23*	—				
4. Friends support	.18*	-.22*	.54*	—			
5. Romantic partner support	.30*	-.19*	.56*	.54*	—		
6. Self-rated physical health	-.05	-.32*	.29*	.21*	.17*	—	
7. Depressive symptoms	-.01	.65*	-.31*	-.32*	-.35*	-.30*	—
M	1.80	2.94	5.71	5.75	5.89	4.07	1.84
SD	.40	.62	1.34	1.25	1.31	.87	.57

Note. Gender: 1 = male, 2 = female.

*p < .001.

TABLE 2 Results of gender moderating the relationships between sources of social support and self-rated physical health

	Family support			*Friends support*			*Romantic partner support*		
Variable	***B***	***SE***	**β (*t*)**	***B***	***SE***	**β (*t*)**	***B***	***SE***	**β (*t*)**
Perceived stress	−.35	.06	−.25 (−6.44)***	−.39	.06	−.28 (−7.13)***	−.40	.06	−.29 (−7.19)***
Source	−.03	.10	.04 (.28)	−.19	.12	−.27 (−1.51)	−.01	.11	−.02 (−.09)
Gender	−.55	.31	−.25 (−1.74)	−.95	.37	−.44 (−2.56)*	−.42	.33	−.19 (−1.25)
Source × Gender	.08	.06	.31 (1.38)	.16	.07	.64 (2.45)*	.06	.06	.24 (1.00)

*p < .05.

***p < .001.

TABLE 3 Results of gender moderating the relationships between sources of social support and depressive symptoms

	Family support			*Friends support*			*Romantic partner support*		
Variable	***B***	***SE***	**β (*t*)**	***B***	***SE***	**β (*t*)**	***B***	***SE***	**β (*t*)**
Ethnicity	−.02	.02	−.03 (−1.04)	−.02	.01	−.04 (−1.44)	−.02	.01	−.03 (−1.06)
Perceived stress	.58	.03	.63 (20.28)***	.57	.03	.63 (20.53)***	.56	.03	.62 (20.21)***
Source	−.10	.06	−.24 (−1.88)	−.20	.07	−.43 (−3.02)**	−.12	.05	−.27 (−2.24)*
Gender	−.25	.17	−.18 (−1.48)	−.50	.20	−.35 (−2.50)*	−.16	.17	−.11 (−.93)
Source × Gender	.02	.03	.15 (.81)	.07	.04	.42 (1.95)†	.02	.03	.11 (.56)

†p = .05.

*p < .05.

**p < .01.

***p < .001.

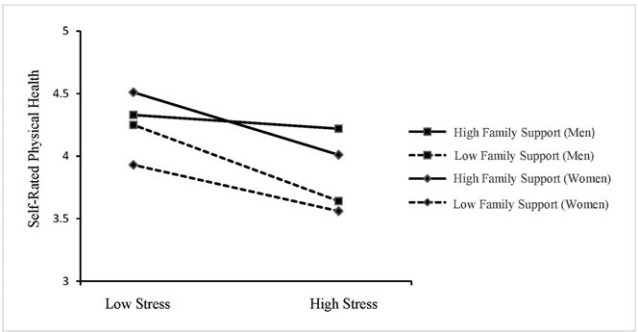

FIGURE 1 Result of how family support moderating the association of perceived stress with physical health differs by gender

7 | DISCUSSION

Using a large sample of emerging adults, this study aimed to empirically test two theoretical models that demonstrate the role of social support as a buffer and a distress deterrent in the relationship between stress and health. Life course perspective posits that an individual's need for social support may vary with age-related changes, particularly across contexts (Colarossi & Eccles, 2003). Contextual changes may trigger changes in social networks and needs for different types and/or sources of support, especially when experiencing stress. For instance, during adolescence, friends gradually replace parents as the main source of social support and intimacy (Frey & Rothlisberger, 1996; Scholte, van

Lieshout, & van Aken, 2001). During the transition to adulthood, while the salience of friendship continues, romantic relationships become more common and important (Arnett, 2015b; Markiewicz & Doyle, 2011). Therefore, emerging adults without adequate support (particularly from close friends or intimate partners) are likely more vulnerable to health problems such as depression. This is because emerging adults are likely to spend the substantial time with friends and partners, and may also prefer to self-disclose and/or consult about life choices and decision with them (Collins & van Dulmen, 2006), thereby magnifying the impact of their support (or lack thereof). Results of our study lend additional credence to the importance of social support in the stress-health relationship among emerging adults attending college, offering a novel contribution by demonstrating that the relationship may vary by the particular sources of support, health outcomes, and gender.

A strength of the study is that it tests two theoretical approaches by examining the relative effectiveness among three relationship-specific sources of social support (family, friends, and romantic partners) in the stress-health relationship, and that multiple indicators of health (i.e., both physical and psychological health) are assessed to extend our understanding of the relationship. The results support our first hypothesis, albeit with marginal significance, suggesting that only support from family was a buffer of stress and health, particularly by decreasing the adverse association of perceived stress with depressive symptoms. In other words, the buffering effect varied by the source of support and by the health outcome considered. It appears that given the long-standing nature of parent-child relationships, emerging adults' perceptions of support from family may work as a buffer in diminishing the negative effects of perceived stress in college on depressive symptoms. This finding underscores the importance of family support in protecting emerging adult children's mental health against stress. Prior research often suggests that the quality of parent-child relationships deteriorates as children move into adolescence and young adulthood. However, as research continues to point out (Lee et al., 2016; Meadows et al., 2006), reduction in perceived support from family, particularly among emerging adults, does not necessarily mean that family support as a protective factor has become less effective.

Our findings also support the second hypothesis, in that the three specific sources of social support make differential contributions to the prediction of health outcomes, regardless of the levels of stress. Specifically, it appears that emerging adults' perceived support from family, but not from friends or a romantic partner, benefits their self-rated *physical* health. Perhaps after their children go to college, many parents feel that physical health becomes a primary domain for them to offer care and support. An alternative explanation is that students recognize this type of support more readily than other types. Either possibility fits with research suggesting that when assessing emerging adults' family support, the general focus is on the transfer of material resources (Johnson & Benson, 2012). In contrast, our results suggest that for emerging adults, support from friends or romantic partners, but not their families, is effective in promoting their *psychological* health, observed by decreased depressive symptoms. Such results reinforce the critical importance of support from friends and/or intimate partners in emerging adults' growth in psychological functioning (e.g., self-esteem and identity), social well-being (e.g., companionship), and/or need for intimacy (e.g., romance). Strengthening these protective factors and/or inviting students to be mindful of them is likely to decrease depressive symptoms and enhance psychological health (Lakey & Cohen, 2000).

An additional strength of the study is that gender differences were considered in the levels of health outcomes and in the relationships among stress, social support, and health. Contrary to expectations as articulated in our third hypothesis, we found no gender differences in the mean levels of either health outcome. Considerable empirical evidence indicates that women are more vulnerable to health problems, particularly in response to stress (Maciejewski et al., 2001; Mezo & Baker, 2012). However, although on average the young adult women in our study rated their overall physical health lower and reported more depressive symptoms than did men, the observed differences were not statistically significant. These nonsignificant results, although somewhat out of step with research on women in general, are consistent with some prior research using young adult samples (e.g., Hale et al., 2005; Mounts, 2004). This suggests that age and/or developmental stage may be important to account for in understanding this relationship.

Our results also supported our fourth hypothesis—that gender moderates the association between social support and health. Specifically, we found that the positive relationship between friends support and physical health was observed only in women, suggesting that perceived friends support may attenuate stress-reactivity for women. We found that gender also moderated the association between friends support and psychological health. Specifically, the negative relationship between friends support and depressive symptoms was greater in men than in women. It appears that in our study men benefit more from friends support than women in psychological health, observed by decreased depressive symptoms. This finding seems to suggest that the moderating effect of gender on the association of social support with health depends not only on the source of support, but also on the health outcome. However, given the mixed findings addressed earlier, research to date has not found conclusive gender moderation effects. While our finding of the gender difference favoring men might be a surprise to some, it had been reported in prior research. For example, in their study sampling hurricane victims, Haines et al. (2008) unexpectedly found the relationship between perceived adequacy of social support and depressive symptoms greater in males than in females. However, their finding is limited in its generalizability, given the fact that the sample was from a troubled population, leaving one to wonder how much the surprising finding can be attributed to their sample characteristics (Kerr et al., 2006). In contrast, our study consists of samples from normative (i.e., nonclinical) populations; thus, our finding adds another piece to the puzzle in terms of how gender might alter the association of social support, friends support in particular, with depressive symptoms. Clearly, more research is needed to further examine such gender moderation effects before less tentative conclusions can be drawn.

Finally, there have been very few studies examining whether the stress-buffering effects of particular sources of social support on health would vary by gender (i.e., three-way interaction, or moderated moderation). Our results, while lending additional support to a rarely tested interaction effect, seem to portray a different picture about how gender alters the associations between stress, family support, and physical health among emerging adults. Specifically, unlike

Wohlgemuth and Betz's (1991) study reporting that the moderation effect of family support on physical symptoms was only found in women college students, our results suggest that the moderation effect was present only for men. That is, men's perceived support from family reduced the negative effect of stress on health; the adverse association between stress and physical health was greater with lower family support than with higher family support. Contradictory as it appears, our finding is similar to another previous study (i.e., Roxburgh, 2004) suggesting that coworker social support was a buffer of the negative relationship between time pressure and depression only for men. Studies examining the three-way interaction effect remain surprisingly few. Along with the mixed findings in the literature, whether gender might, and how, moderate the stress-buffering effects of relationship-specific sources of social support on health (both physical and psychological) is far from clear, thereby warranting further investigation in hopes of unveiling more consistent patterns of gender effects.

7.1 | Limitations of study

Despite the strengths of this study, several limitations should also be noted. First, data were all based on participants' self-reports. This common method variance likely contributed to somewhat inflated associations among the variables. Second, this study was cross sectional in design. Thus, no causal inferences can be made. Longitudinal research design would allow researchers to examine how the role of support might change by its sources across developmental transitions (e.g., from adolescence to young adulthood) and what impacts such changes might have on individual well-being (Rose & Rudolph, 2006). Third, the study focuses only on college students; the extent to which results generalize to emerging adults who do not attend college is unclear. It has been known that young people who do not go to college are underrepresented in research, and that college students do differ from nonstudent emerging adults on demographic, socioeconomic, and psychosocial variables (Halperin, 2001). In addition, studies that include both student and nonstudent emerging adults will allow researchers to consider possible diverging pathways as a result of the choice they make (e.g., going to college vs. working right after high school) and how these choices might shape their life courses, development, and health (Elder & Shanahan, 2006). Subsequent research recruiting study participants from this understudied population of nonstudents remains a great need. Finally, most of the study participants were women, leading to a skewed women-to-men ratio, which should be accounted for when drawing conclusions from our results. Future research should replicate our study with more gender-balanced samples.

7.2 | Implications

Today, most high school students go to college immediately after graduation. However, the rate of completing a college degree within a reasonable time frame continues to be low (National Center for Education Statistics, 2011). Prior research has attributed this delayed academic success or failure to the high levels of stress experienced by these young people, resulting in maladjustment among them, including health problems (Ruthig et al., 2011). Our study provides additional evidence for the positive function of social support in lessening the adverse impacts of stress on health in emerging adults.

First, it emphasizes the importance of family support in protecting emerging adults' health in both physical and psychological domains. Instead of assuming that their involvement may not be appreciated by their adult children due to their developmental need of independence and autonomy, parents should continue to play a part in their young adult children's lives by providing needed support, including material aids, care, and advice, to empower them during their transitions through many stress-inducing life challenges (Meadows et al., 2006). College-attending emerging adults should be encouraged to stay connected with and seek support from their parents to maintain their own health, particularly when facing high levels of stress.

Second, our results reaffirm the salience of social support from friends and romantic partners in decreasing emerging adults' health problems, particularly depression, regardless of their stress levels. Given their increased developmental needs in social and/or intimate relationships during the transition (Collins & van Dulmen, 2006), college students thus should be encouraged to participate in activities that inspire the development of social relationships, such as campus-sponsored clubs, support groups, and organizations (Abe, Talbot, & Geelhoed, 1998). In addition, first year or new student orientation programs can be beneficial, as they introduce students to new peers, and also provide opportunities to identify and support students who may be at increased social risk. Emerging adults might also benefit seeking out additional opportunities within the community for establishing new relationships, such as through volunteer opportunities, community involvement, faith communities, or paid employment (e.g., Semplonius, Good, & Willoughby, 2015; Zaff, Donlan, Pufall Jones, & Lin, 2015). To those who have moved to a new community, doing so may be particularly beneficial, as activities such as these will provide an opportunity to build social connections and potential supportive relationships in their new locale (Lee, Goldstein, & Dik, 2016).

8 | CONCLUSION

The current study reaffirms the importance of examining the source of social support when examining its role in the stress-health relationship. Our findings suggest that to emerging adults, which particular source of social support is effective in independently protecting and/or buffering the adverse relationship of stress with health may depend on which health indicator is considered. We also found that gender not only moderates the association of friends support with psychological health, but also alters how family support buffers the negative relationship between stress and physical health.

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