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Social Support, Self-Esteem, and Stress as Predictors of Adjustment to University Among First-Year Undergraduates

Laura J. Friedlander* Graham J. Reid* Naomi Shupak Robert Cribbie

The current study examined the joint effects of stress, social support, and self-esteem on adjustment to university. First-year undergraduate students (N = 115) were assessed during the first semester and again 10 weeks later, during the second semester of the academic year. Multiple regressions predicting adjustment to university from perceived social support (friends and family), self-esteem (academic, social, and global), and stress were conducted. From the fall to winter semesters, increased social support from friends, but not from family, predicted improved adjustment. Decreased stress predicted improved overall, academic, personal-emotional, and social adjustment. Increased global, academic, and social self-esteem predicted decreased depression and increased academic and social adjustment. Results are discussed with respect to potential mechanisms through which support and self-esteem may operate.

The transition from high school to university is a major life change for many adolescents. Attending university presents students with learning experiences and opportunities for psychosocial development (Tao, Dong, Pratt, Hunsberger, & Pancer, 2000). However, entering university may be a source of strain and an acute stressor (Gall, Evans, & Bellerose, 2000). Academic demands increase and new social relations are established (Tao et al.). Students are often uncertain of their abilities

to meet these demands (Dwyer & Cummings, 2001). For students who move away from home, the transition to university reduces contact and, likely support, from family as well as friends. Difficulties handling these stressors associated with the transition may lead to decreased academic performance and increased psychological distress (Dwyer & Cummings). Social support and self-esteem are important resources for adolescents undergoing the transition to university. Positive self-esteem (e.g., Bettencourt, Charlton, Eubanks, Kernahan, & Fuller, 1999) and higher levels of perceived social support (e.g., Cutrona, Cole, Colangelo, Assouline, & Russel, 1994) have both been shown to predict better adjustment to university. Thus, our overall question of interest was how changes in support, self-esteem, and stress are related to changes in adjustment from the fall of students' first year to early in the second semester.

Little attention has been paid to how different sources of social support (i.e., friends, family) and types of self-esteem (i.e., academic, social, global) differentially predict various facets of adjustment. In a longitudinal study, the present study examined the joint contribution of perceived social support (i.e., friends, family), self-esteem (i.e., academic, social, global), and stress as predictors of academic, social, personal-emotional, and overall adjustment across time. We were interested in

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(a) how changes in these factors jointly contributed to changes in adjustment, (b) the extent to which support from family versus friends would contribute to changes in adjustment, and (c) maintaining specificity in students' domains of self-esteem (e.g., social self-esteem) in relation to changes in the related domain of adjustment.

Adjustment to University

In the transition to university, students' academic, social, and emotional adjustment are perhaps the three most important domains to consider. Academic adjustment, or how well students deal with educational demands, includes motivation to complete academic work, success in meeting academic requirements, academic effort, and satisfaction with the academic environment (Baker & Siryk, 1989). Social adjustment is fundamental for everyone, but particularly important for adolescents engaged in the process of individuation from their family. Moving away from home to live in residence likely accelerates this process. Social adjustment can be measured in many ways. We examined how well students were functioning in the social environment, their involvement in social activities, and their satisfaction with various social aspects of the university experience. Major life events, such as the transition to university, are times of heightened vulnerability to emotional problems (Compas, Wagner, Slavin, & Vannatta, 1986). Up to 20% of university students experience depression during their undergraduate education (Daughtry & Kunkel, 1993), and first-year students have the highest rates of depressive symptoms (Beeber, 1999). Thus, we included depression as an outcome along with emotional adjustment in general.

Stress and Adjustment

University life has been reported to be more harsh and stressful than students anticipate

(Compas et al., 1986). Up to 60% of first-year students leave university without finishing their degrees; the majority of these students leave within the first two years (Porter, 1990). Stress adversely affects psychological and physical health (e.g., Dwyer & Cummings, 2001; Fisher & Hood, 1988). Undergraduate students reported stress was the most common health factor impacting their academic performance (American College Health Association, 2006). Demakis and McAdams (1994) found that undergraduate students who reported heightened levels of stress had significantly more physical health problems and less satisfaction compared with those reporting lower levels of stress. Wintre and Yaffe (2000) found that increases in stress during the first year predicted decreased overall adjustment and lower grade point average (GPA) at year-end. Pancer, Hunsberger, Pratt, and Alisat (2000) demonstrated that students' stress level in the summer before starting university predicted academic, social, personal-emotional, and overall adjustment 6 months later. Most studies found that at the beginning of the transition (first few months of classes) students experience the greatest difficulty (e.g., Baker, McNeil, & Siryk, 1985). The present study examined stress at the mid-point of the first semester and again 10 weeks later, during the second semester.

Social Support and Adjustment

Social support is one of the most important protective factors for undergraduates (Tao et al., 2000). Social support includes social resources that individuals perceive to be available or that are actually offered to them by helping relationships (Cronkite & Moos, 1995). Perceived social support is one of the most commonly used measures of social support. Perceived social support is a person's perception of the availability of support from others (i.e., friends and family) and captures

the complex nature of social support including both the history of the relationship with the individual who provided the supportive behavior and the environmental context (Hobfoll & Vaux, 1993). Barrera, Sandler, and Ramsay (1981) have proposed four different types of support that friends and family may offer including guidance and feedback (e.g., advice and instruction), non-directive support (e.g., trust and intimacy), positive social interactions (e.g., spending time with friends and family), and tangible assistance (e.g., shelter and money).

The relationship between perceived global social support (i.e., one composite score for the different sources of social support) and one facet of adjustment has been the focus of the majority of studies in this area. For example, in a 1-year longitudinal study Halamandaris and Power (1999) found that perceived global social support predicted psychosocial adjustment (i.e., absence of loneliness and overall satisfaction with the social and academic components of university life). Tao and colleagues (2000) demonstrated that perceived global social support was related to academic, personal-emotional, and social adjustment during the 3rd and 15th weeks of the first semester. Perceived social support was more closely related to social adjustment than to personal-emotional or academic adjustment.

Perceived social support from parents and peers (i.e., perceptions of the availability of parental and peer social support) has been examined separately. In a cross-sectional study, Holahan, Valentiner, and Moos (1995) found first-year students with higher levels of perceived parental support were better adjusted (i.e., higher well-being and happiness) and less distressed (i.e., less depression and anxiety) than those with lower levels of perceived parental support. Cutrona and colleagues (1994) examined perceived social support from parents and peers at the beginning of the first

semester and GPA at the end of the following semester. Although perceived parental social support predicted academic adjustment after controlling for academic aptitude (i.e., college admissions test), perceived social support from peers did not. The present study examined perceived social support from both parents and peers. Unlike previous studies, we examined whether these sources of support are related to different aspects of students' adjustment to university.

Self-Esteem and Adjustment

Self-esteem is a positive or negative attitude toward oneself (Rosenberg, 1965) and the personal judgement of worthiness (Coopersmith, 1967). Global self-esteem is an overall feeling of self-worth (Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995). Specific self-esteem is a feeling of competence in a specific area of life such as academics, work, or social relations. Higher global self-esteem has been shown to be vital for a variety of adolescent developmental outcomes, such as the transition to university (Hickman, Bartholomae, & McKenry, 2000), whereas lower self-esteem has been related to poorer social adjustment in a number of studies (e.g., Geist & Borecki, 1982; Rice, 1999). Mooney, Sherman, and Lo Presto (1991) found higher global self-esteem was related to overall as well as academic and social adjustment among first-year female students. Similarly, Hickman and colleagues found global self-esteem predicted overall, academic, and social adjustment, after controlling for demographics, intelligence, and paternal and maternal educational attainment.

The present study examined the relation between overall and specific types of self-esteem in terms of specific types of adjustment. Use of specific types of self-esteem (i.e., social self-esteem) in predicting corresponding measures of adjustment (i.e., social adjustment) should have better predictive ability than when

type of self-esteem and adjustment indices are not matched (Rosenberg et al., 1995). For example, Rosenberg and colleagues found that global self-esteem had a very small effect on school grades after controlling for academic self-esteem ($r = .09$), whereas academic self-esteem had a large effect on school performance that remained after controlling for global self-esteem ($r = .46$). Similarly, Mboya (1989) found stronger relations between academic self-esteem and several indices of academic achievement ($r_s = .44$ to $.52$) than between global self-esteem and academic achievement ($r_s = .12$ to $.20$) among high school students. The present study examined the relative predictive ability of global and specific self-esteem (i.e., academic and social self-esteem) and similar adjustment measures, overall, academic, and social adjustment.

Present Study and Hypotheses

It is likely that it is not just social support, self-esteem, or stress that affects the adjustment process to university. Rather adjustment at this time is the result of these multiple domains of influence that jointly impact the student's transition. Previous work has stressed the individual contributions of each of these factors with little attention being paid to their simultaneous effects over time. The current study examined the longitudinal relations between (a) stress, (b) specific (i.e., academic and social) as well as global self-esteem, and (c) social support (i.e., perceived social support from friends and family) and facets of adjustment relevant to the transition to university (i.e., academic, social, personal-emotional, and overall adjustment). We were specifically interested in how changes in these factors related to changes in adjustment over time. Change scores were computed for stress, social support, and self-esteem and were examined in relation to change scores computed for each of the facets of adjustment. By examining

changes in these predictor variables, we can better understand potential mechanisms related to why some students adjustment improves or deteriorates during the first year.

It was hypothesized that when examining the joint contributions of these variables, we expected that decreased stress, increased social support, and increased self-esteem would predict improved adjustment from fall to spring semester as indicated by: (a) decreases in personal-emotional adjustment (overall and depressive symptomatology), (b) increases in social adjustment, and (c) increases in academic adjustment. Thus, in our regression models we entered change scores for stress, social support, and self-esteem simultaneously. Finally, we predicted that the use of specific types of self-esteem (e.g., social self-esteem) in predicting corresponding measures of adjustment (e.g., social adjustment) should have better predictive ability than when the type of self-esteem and adjustment indices are not matched (e.g., global self-esteem and social adjustment). In our regression models we entered changes in both global and specific self-esteem and examined the relative contribution of each in predicting specific facets of adjustment.

METHOD

Participants

Participants were 128 first-year undergraduate students receiving research credit in an introductory psychology course at a midsized Canadian university. Two participants were excluded because of language barriers, seven participants did not take part in the follow-up session because they had already fulfilled the research requirement for their course, and four participants dropped out of this study after the telephone portion of this study. The final sample consisted of 115 participants (94 women) ranging in age from 17 to 21 years

($M = 19.01$; $SD = 0.55$). Eighty-one percent of students lived in residence. Ninety percent of students were attending university away from home; of these students, 97% communicated with their parents at least once a week. The study was approved by the Psychology Ethics Committee of the university and treatment of participants was in accordance with the ethical standards of the Canadian and American Psychological Associations.

Materials

Demographics. Demographic questions included students' living arrangements, whether or not they attend university away from home, and contact with parents through visits and communication.

Multidimensional Scale of Perceived Social Support. The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) is a 12-item self-report inventory that assesses perceived availability of social support from friends and family. Participants respond on a 7-point scale, ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). Sample items included "My family really tries to help me," "I get the emotional help and support I need from my family," "I have a friend with whom I can share my joys and sorrows," and "I can talk about my problems with my friends." Scores for perceived social support from friends and family were calculated. The MSPSS has good internal and test-retest reliability as well as adequate construct validity with a variety of samples including university undergraduates (Zimet et al., 1988; Zimet, Powell, Farley, Werkman, & Berkoff, 1990). Internal consistencies in the present study ranged from .89 to .92.

Perceived Stress Scale. This 10-item short-form version of the Perceived Stress Scale (PSS; Cohen & Williamson, 1988) assesses the degree to which situations in a person's life are

appraised as unpredictable, uncontrollable, overloading, and generally stressful. Participants rate each statement on a scale of 0 (*never*) to 4 (*very often*) in terms of stress over the previous month. A total stress score was computed. Sample items included "In the last month, how often have you felt confident about your ability to handle personal problems?" and "How often have you felt that things were going your way?" The PSS has been shown to have adequate internal consistency ($\alpha = .78$; for our sample, .87 first semester and .88 second semester) and has been found to be correlated with health behaviors and physical symptomatology (Cohen & Williamson).

Self-Perception Profile for College Students. The Self-Perception Profile for College Students (Neemann & Harter, 1986) is a 54-item questionnaire that assesses self-perceptions in 13 domains including global self-worth (i.e., scholastic competence, job competence, social acceptance, appearance, parent relationship, close relationships, romantic relationships, intellectual ability, morality, humor, creativity, athletic competence). For each item, participants indicate which of two types of students they are most like, followed by whether that description is "sort of true" or "really true" for them. Items are scored from 1 (*least competent self-judgment*) to 4 (*most competent self-judgment*). Only three domains were analyzed in the current study: scholastic competence (e.g., "Some students feel confident that they are mastering their own coursework, but other students do not feel so confident"), social acceptance (e.g., "Some students find it hard to make new friends, but other students are able to make new friends easily"), and global self-worth (e.g., "Some students usually like themselves as a person but other students often do not like themselves as a person"). Coefficient alphas for these three domain subscales ranged from .76

to .92 (.77 to .87 in our study; Neemann & Harter). The questionnaire has also shown good factorial validity for the competence subscales (Crocker & Ellsworth, 1990).

Beck Depression Inventory–II. The Beck Depression Inventory–II (BDI–II; Beck, Steer, & Brown, 1996) contains 21 sets of four statements and assesses the presence and severity of affective, behavioral, and cognitive aspects of depressive symptoms. Participants are asked to select the statement that best describes how they have been feeling during the past 2 weeks (scored 0 to 3). A total score is based on the sum of the responses to the 21 items with a higher score indicating more severe depressive symptoms. The BDI–II has demonstrated adequate content and factorial validity (Beck et al.; Dozois, Dobson, & Ahnberg, 1998), high internal consistency ($\alpha = .93$) among college students and psychiatric outpatients, and high test–retest reliability ($r = .93$) over a 1-week period (Beck et al.). In our study, the coefficient alpha was .89 in the first semester and .85 in the second semester.

Student Adaptation to College Questionnaire. The Student Adaptation to College Questionnaire (SACQ; Baker & Siryk, 1989) is one of the most widely used measures to assess psychological functioning among university students. The SACQ contains 67 items with four subscales: Academic (e.g., “I have been keeping up to date on my academic work”), Social (e.g., “I am very involved with social activities in university”), Personal-Emotional Adjustment (e.g., “Being on my own, taking responsibility for myself, has not been easy”), and Institution Attachment. The present study used Overall Adjustment as well as the Academic, Personal-Emotional, and Social Adjustment subscales. Students respond to each statement on a 9-point scale ranging from 1 (*applies very closely to me*) to 9 (*doesn't apply to me at all*). High scores indicate better adjustment. The full scale and the subscales

have high internal consistency reliability (alpha coefficients ranging from .81 to .95) among first-year university students at several institutions (Baker & Siryk); coefficient alphas for our sample ranged for first and second semesters from .82 to .93 for the full scale and subscales. Convergent validity has been shown through the significant correlations established between the subscales and related variables such as GPA, involvement in social activities, and scores on measures of depression and anxiety (Baker & Siryk; Wintre & Yaffe, 2000).

Procedure

There were two parts to this study: initial assessment and a follow-up. During the initial assessment, which was completed during November of the student's first semester of university, participants filled out a questionnaire package. The follow-up session was conducted at the beginning of second semester, approximately 10 weeks after the first part of the study. Participants completed a questionnaire package identical to the one completed during the first semester session with the exception of some demographic items.

Data Analyses

Three variables (i.e., depression, social support from friends, and social support from family) were severely positively skewed. Application of the natural logarithm transformation yielded normal distributions for these variables. There were no other normality, linearity, or homoscedasticity issues. Social support from friends and family were highly correlated ($r = .50$); separate models for each source of support were tested to control for multicollinearity and allowed for an examination of the strength of each type of support in predicting adjustment.

Difference scores were created for each of the repeatedly assessed predictor and adjustment variables by subtracting spring semester from

fall semester data. The strength of the relations between specific versus global self-esteem and each domain of adjustment were compared using r to z transformations. Multiple regressions predicting adjustment to university (academic, social, personal-emotional, and overall adjustment, as well as depression) from gender, perceived social support (friends, family), self-esteem (academic, social, global), and stress were conducted. For the self-esteem variables, academic and global self-esteem were used to predict perceived academic adjustment, social and global self-esteem were used to predict social adjustment, and global self-esteem was used to predict overall adjustment, personal-emotional adjustment, and depression. To test the differential effects of global and specific self-esteem, regressions examining social and academic adjustment were run entering both specific and global self-esteem

into the same model. The relative strength in the specificity of global versus specific self-esteem was examined by comparing correlations using r to z transformations. All analyses were performed using SPSS with a nominal significance level of .05.

RESULTS

Table 1 presents the means and standard deviations for the predictor and adjustment variables by semester. Table 2 shows the correlations between changes in types of self-esteem and changes in the four domains of adjustment. The correlation between social self-esteem and social adjustment was greater than with global self-esteem ($t = 2.70, p < .01$). However, the correlation between academic self-esteem and academic adjustment was not greater than with global self-esteem

TABLE 1.
Means, Standard Deviations, and Correlations for Predictor and Outcome Variables in the Fall and Spring Semesters

Variable	Fall		Spring		Fall and Spring
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>r</i>
<i>Outcome Variables</i>					
Personal-Emotional Adjustment	84.04	20.70	85.78	18.91	.68**
Academic Adjustment	135.70	23.63	138.39	26.23	.73**
Social Adjustment	131.68	23.10	133.21	23.23	.72**
Overall Adjustment	404.36	58.77	409.39	61.07	.76**
Depression	10.52 _a	7.15	8.86 _b	5.64	.53**
<i>Predictor Variables</i>					
Stress	1.81 _a	.67	1.63 _b	.66	.58**
Social Support-Friends	6.20	.88	6.21	.84	.57**
Social Support-Family	6.14	1.01	6.18	.94	.73**
Academic Self-Esteem	2.71	.70	2.78	.69	.71**
Global Self-Esteem	3.12	.63	3.07	.47	.69**
Social Self-Esteem	3.14 _a	.71	3.30 _b	.65	.73**

Note. Means in a row with different subscripts are significantly different.

** $p < .01$.

TABLE 2.

Correlations Between Changes in Different Types of Self-Esteem and Changes in Adjustment, and Inter-Correlations Among Changes in Different Types of Self-Esteem

Changes in Self-Esteem	Changes in Adjustment					Changes in Self-Esteem	
	Δ Social Adjustment	Δ Academic Adjustment	Δ Personal-Emotional Adjustment	Δ Depression	Δ Overall Adjustment	Δ Academic	Δ Global
Δ Academic	.29**	.40***	.24*	-.33***	.35***	—	
Δ Social	.52***	.17	.11	-.21*	.38***	.24*	.45***
Δ Global	.30**	.32**	.30**	-.47***	.40***	.43***	—

Notes. $N = 108-111$. Δ = difference score from fall to spring semester.

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

($t = 0.77$, ns). This offers some support for matching domains of self-esteem and adjustment. This issue is further tested in the regression in which both specific and global self-esteem were entered in predicting social and academic adjustment. The other domains of adjustment did not have a corresponding specific type of self-esteem. For both personal-emotional and overall adjustment, there were no statistically significant differences in the correlations between the three types of self-esteem and adjustment. For depression, global self-esteem was more strongly correlated than either academic ($t = 2.08$, $p < .05$) or social self-esteem ($t = 3.10$, $p < .01$).

Bi-variate correlations and regressions testing the relation between changes in stress, social support from friends, self-esteem, and changes in adjustment from the fall to spring semester are presented in Table 3. Analyses using social support from family are presented in Table 4. All analyses were conducted separately for each adjustment index.

In the bi-variate analyses, changes in stress and self-esteem were significantly related to changes in each adjustment measure ($|r| = .30$

to .68; median = .39). Increased social support from friends was related to improved adjustment in all areas, except academic adjustment ($|r| = .11$ to .34; median = .32). In contrast, increased social support from family was significantly related only to improved overall adjustment ($|r| = .00$ to .19; median = .12). Thus, changes in stress, self-esteem, and support (primarily from friends) each related to improved adjustment across domains.

The joint effects of changes in stress, social support, and self-esteem were examined in multiple regressions. Of the five regressions models that included support from friends (Table 3), in one model stress, support, and self-esteem were all significantly related to changes in adjustment (social adjustment), and in the other four models two of the three predictors were significant. In the five regressions models that included support from family (Table 4), two of the three predictors were significantly related to changes in adjustment in four of the models; only changes in stress predicted changes in personal-emotional adjustment. These findings generally support our hypotheses that changes in stress,

TABLE 3.

Bi-Variate Correlations and Regressions Examining Relations Between Changes in Stress, Social Support from Friends, Self-Esteem, and Changes in Adjustment from the Fall to Spring Semester

Adjustment Variable	R^2	r	B	SEB	β
Δ Overall Adjustment	.44***				
Gender		.10	17.99	8.01	.17*
Δ Stress		-.61**	-37.44	5.48	-.55***
Δ SS-Friends		.34**	45.29	18.95	.19*
Δ Global SE		.40**	9.13	7.83	.10
Δ Social Adjustment	.34***				
Gender		.06	5.18	3.54	.12
Δ Stress		-.38**	-6.78	2.45	-.25**
Δ SS-Friends		.32**	20.12	8.53	.20*
Δ Social SE		.52**	15.25	3.12	.43***
Δ Global SE		.30**	-1.46	3.68	-.04
Δ Personal-Emotional Adjustment	.48***				
Gender		-.01	3.23	2.95	.08
Δ Stress		-.66**	-17.21	2.02	-.66***
Δ SS-Friends		.32**	17.30	6.97	.19*
Δ Global SE		.30**	-1.75	2.88	-.05
Δ Depression	.51***				
Gender		.21*	.38	.19	.14*
Δ Stress		.68**	.96	.13	.57***
Δ SS-Friends		-.28**	-.19	.44	-.03
Δ Global SE		-.47**	-.52	.18	-.22**
Δ Academic Adjustment	.23***				
Gender		.19*	9.38	4.19	.20*
Δ Stress		-.39**	-8.08	2.95	-.27**
Δ SS-Friends		.11	6.71	10.07	.06
Δ Academic SE		.40**	8.94	3.50	.26*
Δ Global SE		.32**	2.53	4.40	.06

Notes. Δ = difference score from fall to spring semester; SS = Social Support; SE = Self-Esteem; Gender, 1 = men, 2 = women; r = bi-variate Pearson correlations; B = unstandardized Beta; SEB = standard error of B ; β = standardized regression coefficient.

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

TABLE 4.

Bi-Variate Correlations and Regressions Examining Relations Between Changes in Stress, Social Support from Family, Self-Esteem, and Changes in Adjustment from the Fall to Spring Semester

Adjustment Variable Predictors	R^2	r	B	SEB	β
Δ Overall Adjustment	.43***				
Gender		.10	15.91	8.02	.15*
Δ Stress		-.61**	-38.77	5.51	-.57***
Δ SS-Family		.19*	44.44	21.18	.16*
Δ Global SE		.40**	12.60	7.73	.13
Δ Social Adjustment	.30***				
Gender		.06	4.18	3.57	.12
Δ Stress		-.38**	-7.20	2.48	-.25**
Δ SS-Family		.12	8.57	9.44	.08
Δ Social SE		.52**	15.73	3.19	.43***
Δ Global SE		.30**	-.59	3.72	-.04
Δ Personal-Emotional Adjustment	.47***				
Gender		-.01	2.30	2.96	.06
Δ Stress		-.66**	-17.83	2.03	-.68***
Δ SS-Family		.17	15.05	7.80	.14
Δ Global SE		.30**	-.11	2.85	-.00
Δ Depression	.51***				
Gender		.21*	.40	.19	.14*
Δ Stress		.68**	.96	.13	.57***
Δ SS-Family		.00	.48	.49	.07
Δ Global SE		-.47**	-.54	.18	-.23**
Δ Academic Adjustment	.23***				
Gender		.19*	9.03	4.18	.19*
Δ Stress		-.39**	-8.35	2.92	-.28**
Δ SS-Family		.07	7.69	10.98	.06
Δ Academic SE		.40**	8.84	3.47	.25*
Δ Global SE		.32**	3.25	4.24	.08

Notes. Δ = difference score from fall to spring semester; SS = Social Support; SE = Self-Esteem; Gender, 1 = men, 2 = women; r = bi-variate Pearson correlations; B = unstandardized Beta; SEB = standard error of B ; β = standardized regression coefficient.

social support, and self-esteem combine to influence changes in adjustment.

In terms of the specific regression models predicting changes in adjustment from changes in support from friends, as well as changes in stress and self-esteem (controlling for gender), the percentage of variance accounted for ranged from 23% (academic adjustment) to 51% (depression; see Table 3). The predictor variables differed in significance across the adjustment measures: (a) improved overall adjustment was predicted by increased social support from friends ($\beta = .19$) and decreased stress ($\beta = -.55$) but not global self-esteem after controlling for a general effect of women having greater improvements in adjustment than men; (b) improved social adjustment was predicted from social support from friends ($\beta = .20$), decreased stress ($\beta = -.25$), and increased social self-esteem ($\beta = .43$), but not global self-esteem; (c) improved personal-emotional adjustment was predicted from increased social support from friends ($\beta = .19$) and decreased stress ($\beta = -.66$), but not global self-esteem; (d) increases in depression were predicted from decreased global self-esteem ($\beta = -.22$) and increased stress ($\beta = .57$) after controlling for a general effect for women to become more depressed over time and changes in social support from friends was not significantly related to changes in depression; (e) improved academic adjustment was predicted from decreased stress ($\beta = -.27$) and increased academic self-esteem ($\beta = .26$), but not changes in global self-esteem, after controlling for a general effect of women having greater improvements in academic adjustment over time than men.

The regressions were repeated entering social support from family in place of social support from friends (see Table 4). Similar to social support from friends, improved social support of family was related to improved overall adjustment ($\beta = .16$). In contrast to

social support from friends, changes in support from family did not relate to changes in social adjustment or personal-emotional adjustment.

DISCUSSION

Using a longitudinal design, the joint effects of social support, self-esteem, and stress accounted for about a quarter to just over half of the variance in the adjustment measures. Across the different indices of adjustment, a simple pattern of relations did not emerge. Rather, contributions of social support and self-esteem were complex and depended on the adjustment index being examined. Generally, higher levels of social support, better self-esteem, and lower levels of stress were related to better adjustment. There was very little change in the adjustment or predictor variables between the two time points, and thus the relations we report help to understand changes within individuals rather than changes at the group level.

Stress and Adjustment

Changes in self-perceived stress was consistently a major predictor of changes in adjustment. Students who experienced decreases in their stress levels across the 10-week period showed improvements in personal-emotional, academic, social, and overall adjustment. Students experienced their highest levels of stress when commencing the new school year. This is understandable given the demanding academic and social challenges in this new environment. As the students adapted to their environment, their stress levels decreased across time, resulting in notable improvements across the different adjustment indices. It should be noted that the academic adjustment scale we used from the SACQ reflects students' views of managing academic demands rather than academic achievement or grades.

Social Support and Adjustment

Consistent with previous research, social support was an important protective factor that assisted students in making the transition to university. Students who perceived that their social resources increased had improved adjustment. Although this study did not directly tap into mechanisms by which social support is related to adjustment, the impact of a stressful situation, such as the transition to university, may be modified when others assist an individual in changing the situation itself, by altering the meaning it has, or by changing the individual's affective response to the stressful situation (Thoits, 1986). Advice and encouragement from sources of support may also increase the likelihood that an individual will rely on active problem solving and information seeking. These techniques may assist students in dealing with various stressors in the environment and facilitate a positive adjustment process (Holahan et al., 1995).

This was one of the first studies to examine the impact of different sources of social support across several indices of adjustment. Changes in social support from friends, compared to family, was a more consistent predictor of changes in adjustment. Although increased social support from friends was predictive of increases in personal-emotional, social, and overall adjustment, increased social support from family was predictive only of increases in overall adjustment. Students in this study were attending a university that is primarily a residential school, with over three quarters of our sample living away from home. Although students had regular contact by telephone or visiting with their family members, this study suggests that it is the perceived availability of friends that becomes an important resource in successfully adjusting to university. Comparing the results to a commuter university (i.e., where most students live

at home) would help our understanding of the relationship between different sources of social support and adjustment.

Self-Esteem and Adjustment

As expected, self-esteem was a significant predictor of various indices of adjustment. In this study self-esteem was conceptualized as a protective factor. That is, people who felt good about themselves were expected to have more effective strategies to deal with the academic and social demands inherent in the university environment. Feeling competent in a specific area may have given students the confidence to tackle diverse stressors, leading to improvements in adjustment over time. These results may also be interpreted in the opposite direction. Namely, students who do poorly in school, or within their peer relations, feel negatively about themselves in these domains, and thus struggle with the transition process.

This study found some support for matching the specific type of self-esteem with the specific outcome measure. When global and the specific type of self-esteem were entered in the same model, the specific type of self-esteem (i.e., academic and social self-esteem) was a significant predictor, whereas the global measure was not. Thus, how a person is adjusting, for example academically, is best explained by how that person feels about their academic ability rather than how they feel about themselves overall. For those facets of adjustment (i.e., personal-emotional, depression, overall) that did not have a corresponding specific type of self-esteem, the relations between adjustment and the different types of self-esteem tended not to vary. Thus, both conceptually and statistically global self-esteem appears to be the most appropriate when there is not a specific match between the domain of adjustment and type of self-esteem, which is the approach we used in the regression analyses.

Personal-Emotional Adjustment and Depression

Personal-emotional adjustment and depression were predicted by different variables. From fall to winter semester, stress was predictive of both personal-emotional adjustment and depression, with social support from friends predictive of personal-emotional adjustment only, and global self-esteem predictive of depression only. Changes in personal-emotional adjustment were significantly correlated with changes in depression ($r = -.63$). However, the personal-emotional adjustment measure used is a global measure including both positive (e.g., "I have been feeling in good health lately") and negative (e.g., "I have not been able to control my emotions very well lately") feelings and symptoms. Social support from friends may contribute to enhancing positive adjustment, but does not specifically influence depressive affect. Having a positive sense of self overall may prevent students from developing generalized negative cognitive styles that are associated with the development of depression. Further research is needed to shed light on this issue. The present study was not designed to examine factors specifically related to the development of depression, which has an extensive literature already (e.g., Beeber, 1999). This study did highlight the need to consider personal-emotional adjustment separately from depression.

Limitations and Implications

Several limitations of the current study should be noted. First, only two assessments were conducted. As such we were able to examine factors associated with changes in adjustment but were unable to look at potential sequential relations between changes in stress, social support, and self-esteem and changes in adjustment. Future research utilizing multiple assessments could test more explanatory

models. In the case of overall adjustment, it may be that if students experience increased stress and subsequently receive increased support from friends and family, then they may be better able to make the transition. Similarly, such studies could examine if increased self-esteem acts as a protective factor leading to better adjustment over time or if changes in self-esteem are better understood as the result of successes or failures within specific domains of functioning. A related issue is the timing of assessments. Stress undoubtedly fluctuates over the school year and is likely highest when multiple assignments and/or examinations occur within a focused period of time. Better understanding of these normative fluctuations in stress could aid in the timing of preventive interventions such that they fit best with students' readiness to engage in an intervention (most likely when students first experience increased stress) but before they become overwhelmed and unable, or unwilling, to take steps to deal more effectively with stress.

We modelled stress and self-esteem as predictors of adjustment. This approach is consistent with theoretical and empirical literature on factors contributing to physical health and illness (e.g., Krantz & McCeney, 2002) and other studies that have examined predictors of adjustment among college students (Chemers, Hu, & Garcia, 2001). However, others have modelled psychological adjustment as one predictor of stress among college students (Dusselier, Dunn, Wang, Shelley, & Whalen, 2005). Correlational studies cannot examine cause and effect but model directional effects based on underlying hypothesized pathways. As suggested above, multiple assessments over time would allow for testing various models of the sequential relations among stress, social support, self-esteem, and adjustment.

This study was limited by an unequal

gender composition. The majority of students were women, which is consistent with composition of undergraduate psychology courses. Collecting data from a larger sample of males would increase the generalizability of these findings.

Given the differential effects of social support from friends and family, the relative effects of types of social support on adjustment could be examined in future studies comparing students who live with their parents versus those living away from home either in residence or off campus with other students. A better understanding of how and when students use parental support is also warranted. Qualitative studies could be of particular value in this regard. Asking students the ways they perceive parents may be useful in developing interventions to facilitate parental support.

In spite of these limitations, the findings suggest directions for university/college administrators, counsellors, and student affairs practitioners. First, given the consistent relations between stress and multiple aspects of adjustment suggests efforts to help students manage stress are warranted. Brief interventions in the college population are effective but often reach only those students having problems that are of such high levels of severity that they are motivated to seek treatment (Deckro et al., 2002). We measured perceived stress; however, efforts to help students manage stress do not have to be at the level of the individual. Readily accessible athletic and recreational facilities may help students exercise more regularly as one method of modulating stress (Campbell, Svenson, & Jarvis, 1992). The architecture, staffing, and policies of dormitories may facilitate both stress management and development of new peer networks for students living away from home. Dormitories need to accommodate places and times that allow students the flexibility to sleep, study, and socialize when they need and want without infringing

on fellow students (Dusselier et al., 2005). Dormitory staff may also play a key role in helping students adjust to living away from home and access programs to help manage stress or treat adjustment problems through existing university health services.

Parental support was not as consistently related to adjustment as peer support. Nevertheless, the impact that parental support can have in facilitating students' overall adjustment during the transition to university should not be ignored. Parents are routinely included in colleges' and universities' efforts to recruit students. As their children enter university and take significant steps towards independence, many parents may feel their role and importance in their children's lives is diminished. Parents may benefit from information on the importance of their ongoing role in supporting and encouraging their children. Specific suggestions on how to provide this support for young adults who are asserting their independence may be needed. Alternatively, if students encounter significant levels of stress in the transition to university and turn to parents for support, parents may struggle with knowing how to best be of assistance. Parental knowledge of key people, such as resident staff and resources within the university to help their children, and suggestions on ways to encourage distressed children to access these services may be of value. Combining systemic change with prevention and early intervention efforts at the level of the student and family holds the most promise for helping students with the transition to university and may in turn decrease the likelihood of academic difficulties.

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