

## Impact of Stress on Health and Coping Tactics in Relation to Sex

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*Few studies focus on stress in relation to numerous physical ailments. The purpose of the present research is to examine relations among stress, physical illness, coping, and sex. We surveyed 220 students at a midwestern university. Stress correlated with gastrointestinal ailments. Stress also correlated with various coping tactics (e.g., criticizing oneself). Men used alcohol and drugs to cope significantly more than women, whereas women used support systems. Identifying strategic coping tactics for each sex would help counselors deal with stress more effectively at colleges across the country.*

PREVIOUS RESEARCH (ARO, HANNINEN, & Paronen, 1989; Glaser, Rabin, Chesney, Cohen, & Natelson, 1999; McCarthy, 2000; Rogers, 2000; Verbrugge, 1983) has shown that stress affects a person's health in numerous ways. However, few studies have focused on stress in relation to numerous physical ailments (e.g., immunity-related, psychosomatic, gastrointestinal, and cardiopulmonary) all at once. Furthermore, certain coping tactics may serve to buffer the impact of stress on illness, and these tactics may vary by sex (Pearlin & Schooler, 1978). The present research examines relations among stress, physical illness, coping, and sex in college students.

### Stress and Physical Illness

A healthy mind and body are essential components to a successful academic career. Because psychiatric illness is thought to account for at least one third of student attrition from British universities (Szulecka, Springett, & de Pauw, 1987), it is important to recognize factors that may interfere with the health of a college student. Numerous studies have shown compelling evidence that stress affects disease onset and progression (Cohen & Herbert, 1996; Seyle, 1950). For example, higher stress levels have been found to

lower physical well-being (Diong & Bishop, 1999).

However, the effect of stress in relation to specific ailments, such as gastrointestinal problems, remains unclear (Wessner, 1996). In addition, reaction to stress can cause specific psychosomatic ailments such as headaches (Labbe, Murphy, & O'Brien, 1997) and can worsen hives (Stevenson, 1998). Stress also hastens the development and increases the occurrence of various cardiopulmonary diseases (Kaplan, 2000; Klinnert, 2000; O'Connor, O'Connor, White, & Bundred, 2000; Rogers, 2000; Sandberg et al., 2000; Sheps, 1998), and stress also has been found to affect upper respiratory tract illnesses (URTI; Cohen & Herbert, 1996; Evans, Doyle, Hucklebridge, & Clow, 1996). A positive relationship exists between "negative emotional states" (stress) and recurrence of the herpes virus (Cohen & Herbert, 1996). In addition, Senior (2001) reported that vaccinations were less effective in preventing pneumococcal pneumonia in chronically stressed people. Few studies have grouped numerous physical ailments together in order to observe the effects stress has on each of them in comparison to other ailments. Thus, this study sought to discover whether one type of physical ailment is more prone than other physical ailments to the effects of stress in college students.

### Coping and Stress

Coping is a response to stress by which a person deals with stressors and the negative responses that accompany them. The increase of substance abuse and adolescent suicide indicates the growing stress and inability to cope (de Anda et al., 1997), and stress in adolescence can severely affect and predict the foundation for behavior patterns in adulthood (Sarmany-Schuller, 1994). Healthy coping tactics are not only necessary to deal effectively with current stress but also are pivotal for adolescents' development into behaviorally secure adults.

Positive/adaptive coping tactics help deal with stress by reducing the negative reactions to stress (e.g., seeking emotional support from others and looking at the situation in a more positive light). They allow the person to deal effectively with stress (Pearlin & Schooler, 1978). For example, social support, mastery of beliefs, and internal locus of control all act as stress buffers (Felsten & Wilcox, 1992). Negative/maladaptive coping strategies are detrimental to the situation (e.g., using alcohol and drugs to feel better, and ignoring the situation). They include actions that make the reactions to stress worse.

### Coping and Physical Ailments

Previous studies have suggested that certain coping tactics might have an adverse effect on physical illness (Creswell & Chalder, 2001). Individuals who utilize the negative strategy of avoidant coping (e.g., avoid dealing with the problem, and use drugs and alcohol) have poorer emotional and physical health than individuals who use other strategies (Davis, Zautra, & Reich, 2001; Pakenham, 2001; Penedo et al., 2001; Roesch & Weiner, 2001). In addition, individuals who utilize the positive strategy of problem-focused coping display lower levels of physical symptomatology (Pakenham, 2001; Penedo et al., 2001; Roesch & Weiner, 2001). However, some studies have found that use of emotion-focused strategies leads to better health (Roesch & Weiner, 2001), whereas other studies have reported that use of emotion-focused strategies leads to poorer health (Pakenham, 2001). Most previous studies of the relation between coping and illness have focused on physically ill populations. The present study sought to shed light on the relation between coping and illness in relatively healthy college students.

### Coping and Sex

Research suggests that each individual has a certain coping style, regardless of environment (Carver, Scheier, & Weintraub, 1989), that is determined by many factors. One such contributing factor is sex

(Felsten, 1998; Mullis & Chapman, 2000).

Sex differences in coping styles between men and women are the reason for the difference in the occurrence and frequency of certain psychological and physical disorders (Fraser, 1986; Hazzard, 1986; Jick & Mitz, 1985; Myers et al., 1984; Nolen-Hoeksema, 1987; Solomon & Rothblum, 1986). These differences also may explain why women suffer from more short-term illnesses than men, whereas men are plagued with more long-term health problems than women (Verbrugge, 1983). Women usually use more social support seeking (Felsten, 1998; Houtman, 1990; Mullis & Chapman, 2000; Porter et al., 2000) and more emotion-focused coping than men do, whereas men usually utilize problem-focused coping tactics more than women do (Ptacek, Smith, & Dodge, 1994). Men also utilize avoidant coping more than women (Kohlman, Weidner, & Messina, 1996). Further research is needed to establish the specific coping strategies utilized by each sex.

The current study seeks to answer general questions related to stress, health, coping, and sex differences. Additional research is needed to examine whether college students suffer from the epidemic of stress in the same way as adults. This project could help doctors and psychologists deal with health issues more effectively. In addition, many previous studies focus on relating coping tactics to dealing with stress, but few studies focus on coping and illness in healthy populations. Our study sought to examine what coping tactics are most effective in college students. We hypothesized that the coping tactics utilized by college students to deal with stress would differ by sex. Specifically, we believed men would engage in active and avoidant coping strategies, whereas women would use more emotion-focused tactics.

## Method

### Participants

We distributed questionnaires to 218 full-time students in classes at the University of Evansville (108 freshmen, 39 sophomores, 36 juniors, and 35 seniors). Women accounted for 126 of the participants and men numbered 92. The mean age for the group was 19.67 years.

### Procedures

The participants took 20–25 minutes to complete the surveys. The students were not chosen randomly, but were asked to participate based on whether their professors allowed for testing in their classes. Participants were informed of the purpose of the study before class. Once the students signed the consent forms, surveys were distributed.

**Measures**

**Physical health.** To assess their physical health, participants were asked how many days during the past month they had experienced any of 18 health symptoms (e.g., cold or flu, dizziness, and cramping). Participants rated whether they had experienced each symptom on a 5-point Likert scale (1 = *never*; 5 = *15+ days*; McIntosh, Keywell, Reifman, & Ellsworth, 1994; Reifman, Biernat, & Lang, 1991). We grouped the physical ailments into four categories (i.e., cardiopulmonary, immunity related, gastrointestinal, and psychosomatic). Next, we obtained a score by summing all the responses to the health items in each category and then dividing the answer by the number of possible symptoms in that group (gastrointestinal,  $\alpha = .73$ ; cardiopulmonary,  $\alpha = .56$ ; immunity related ailments,  $\alpha = .54$ ; and psychosomatic,  $\alpha = .59$ ).

**Stress.** We assessed various stressful events specifically oriented to college students' lives (e.g., "struggling to meet your own academic standards," "finding courses too demanding") using questions adopted from Kohn, Lafreniere, and Gurevich (1990). Participants were asked to rate how much the events have been a part of their lives in the past month on a scale from 1 (*not at all part of my life*) to 5 (*very much part of my life*).

**Coping tactics.** Participants responded to a subset of items from the Brief COPE scale (Carver, 1997), a list of questions on coping that contains 28 tactics (e.g., active coping, planning, positive reframing, acceptance, humor, religion, using emotional support, using instrumental support, self-distraction, denial, venting, substance use, behavioral disengagement, and self-blame), with two items per scale. We classified these 28 items as emotion-focused or problem-focused. We obtained a coping score by averaging the answers for each of the 28 questions.

**Results**

We used an alpha level of .01 to control for Type I error rate.

**TABLE 1**

**Correlation Between Stress and Health**

	<i>r</i>	<i>r</i> <sup>2</sup>
Psychosomatic	0.24	0.06
Gastrointestinal	0.34**	0.12
Immune system	0.15	0.02
Cardiopulmonary	0.17	0.03

\*\**p* < .001.

**Stress and Physical Ailments**

As illustrated in Table 1, students reported higher levels of one of the four physical ailments significantly more often when they reported higher levels of stress. Students attending the University of Evansville who reported high levels of stress were less healthy physically with regard to gastrointestinal ailments.

**Stress and Coping**

Certain coping tactics correlated positively with stress (see Table 2). These significant strategies were: "work and activities as a distraction," "use of alcohol and drugs to feel better," "use of alcohol and drugs to get through it," "criticize oneself," and "blame oneself."

**Physical Ailments and Coping**

As displayed in Table 3, several coping tactics positively correlated to psychosomatic illness and gastrointestinal illness. "Blame oneself" positively correlated to psychosomatic complaints. "Give up trying to deal with it," "give up the attempt to cope," and "blame oneself" positively correlated to gastrointestinal illness, whereas "think hard about what steps to take" negatively correlated with gastrointestinal illness.

**Coping and Sex**

In order to evaluate gender differences in coping, we ran two multivariate analyses of variance (MANOVAs), one for each category of coping (problem-focused and emotion-focused; see Tables 3 and 4). We found sex differences in both problem-focused coping,  $F = 2.33, p < .01$ , and emotion-focused coping,  $F = 4.78, p < .001$ . Men used tactics such as "use of alcohol and drugs to feel better" significantly more than did women. In addition, men utilized the coping tactic "use of alcohol and drugs to get through it" significantly more than women did.

Of the 14 emotion-focused coping tactics, women used 3 of those tactics more than men (see Table 5). Women reported that they would "seek emotional support" from others significantly more than men did. Women would also say things to "let unpleasant feelings escape" significantly more than men did. In addition, women also would "get comfort and understanding from someone" significantly more than would men. Men utilized some emotion-focused coping tactics, but those tactics did not involve seeking social support from others. For example, men "criticized themselves" significantly more than women did. Men also "made jokes about the stressful situation" significantly more often than women did. Finally, men would "make fun of the situation" significantly more than would women.

**TABLE 2**  
**Correlation Between Coping and Stress**

Coping tactic	<i>r</i>	<i>r</i> <sup>2</sup>
Work and activities as distraction	0.33**	0.11
Concentrate efforts on situation	0.05	0.00
"This is not real"	0.27	0.07
Use of alcohol and drugs to feel better	0.28*	0.08
Seek emotional support	0.01	0.00
Give up trying to deal with it	0.18	0.03
Take action to make situation better	-0.00	0.00
Refuse to believe it	0.18	0.03
Let unpleasant feelings escape	0.27	0.07
Seek help and advice from others	0.03	0.00
Use of alcohol and drugs to get through it	0.31*	0.10
See it in a more positive light	0.06	0.00
Criticize oneself	0.48**	0.23
Try to devise a strategy to deal with it	0.17	0.03
Get comfort and understanding from someone	-0.06	0.00
Give up the attempt to cope	0.18	0.03
Look for something good in what has happened	-0.08	0.00
Make jokes about it	0.23	0.05
Do something to think about it less	0.22	0.04
Accept the reality of what has happened	-0.01	0.00
Express negative feelings	0.24	0.06
Find comfort in religion	-0.19	0.04
Get advice and help from others	0.03	0.00
Learn to live with it	0.21	0.04
Think hard about what steps to take	0.04	0.00
Blame oneself	0.42**	0.18
Prayer and meditation	-0.22	0.05
Make fun of the situation	0.26	0.07

\**p* < .01. \*\**p* < .001.

## Discussion

Few studies have examined the relation between stress and specific physical ailments. The present study attempted to examine the role of stress in the occurrence of certain health problems in college students. We grouped certain illnesses together to determine if one system of the body was more affected by stress than others. Another goal of this research was to discover whether certain coping tactics were

successful in reducing the level of stress felt by undergraduate students. Finally, previous research has examined the different ways that men and women cope with stress. This study sought to reveal whether men and women college students utilized different coping tactics solely on the basis of sex. Stress proved to correlate strongly with one specific physical ailment (gastrointestinal). In addition, certain coping tactics reduced stress more successfully than

**TABLE 3**  
**Coping and Physical Ailments**

Coping tactic	Immune system	Cardiopulmonary	Psychosomatic	Gastrointestinal
Work and activities as distraction	-0.05	0.01	0.10	0.03
Concentrate efforts on situation	-0.01	-0.01	0.04	-0.03
"This is not real"	0.03	-0.00	0.05	0.14
Use of alcohol and drugs to feel better	0.00	0.05	0.05	0.10
Seek emotional support	0.07	0.03	0.02	0.03
Give up trying to deal with it	0.09	0.14	0.10	0.29*
Take action to make situation better	0.07	-0.07	-0.09	-0.12
Refuse to believe it	0.01	0.05	0.06	0.11
Let unpleasant feelings escape	0.02	0.04	0.04	0.15
Seek help and advice from others	0.01	-0.05	0.05	-0.02
Use of alcohol and drugs to get through it	-0.06	0.01	0.10	0.12
See it in a more positive light	0.11	-0.14	-0.10	-0.13
Criticize oneself	0.03	0.06	0.14	0.16
Try to devise a strategy to deal with it	-0.02	-0.04	-0.14	-0.17
Get comfort and understanding from someone	0.13	-0.03	0.02	0.01
Give up the attempt to cope	0.07	-0.00	0.17	0.29*
Look for something good in what has happened	0.04	-0.12	-0.04	-0.16
Make jokes about it	-0.03	0.05	0.09	0.00
Do something to think about it less	0.08	0.10	0.00	0.01
Accept the reality of what has happened	-0.06	-0.01	-0.05	-0.06
Express negative feelings	0.08	-0.04	0.06	0.04
Find comfort in religion	-0.01	-0.04	-0.02	-0.01
Get advice and help from others	0.06	-0.05	-0.07	-0.08
Learn to live with it	-0.05	0.06	-0.01	0.02
Think hard about what steps to take	-0.07	-0.11	-0.07	-0.21*
Blame oneself	0.07	0.01	0.19*	0.19*
Prayer and meditation	0.04	-0.08	-0.02	-0.07
Make fun of the situation	-0.01	0.02	0.10	0.02

\* $p < .01$ . \*\* $p < .001$ .

others. Following previous research, men and women used different coping methods.

**Stress and Health**

In the present study stress significantly and positively correlated to one of the four health categories (gastrointestinal symptoms). These findings agree with previous research studies (Cohen & Herbert, 1996; O'Connor et al., 2000; Piccinelli & Simon, 1997; Szulecka et al., 1987), which all state that high levels

of stress lead to increased occurrence and onset of physical illness. Contrary to recent research (Rogers, 2000), we found no significant connection between stress and cardiopulmonary illness. A possible explanation for this difference is that college students are too young to be experiencing any noticeable heart problems that would be worsened by stress. Finally, we noted no significant correlation between stress and decreased immunity. Our study did not reveal that colds, flu, herpes, and allergies seemed worse when

**TABLE 4**  
**Coping by Sex (Problem-Focused)**

Coping tactic	Sex	<i>M</i>	<i>SD</i>	<i>t</i>	<i>F</i>	$\eta^2$
Work and activities as distraction	Male	2.89	0.96	0.67	0.18	0.00
	Female	2.84	0.82			
Concentrate efforts on situation	Male	3.29	0.73	0.08	3.19	0.02
	Female	3.11	0.74			
"This is not real"	Male	1.46	0.71	0.18	1.85	0.01
	Female	1.59	0.73			
Use alcohol and drugs to feel better	Male	1.59	0.90	0.01	6.40*	
	Female	1.34	0.55			
Give up trying to deal with it	Male	1.45	0.73	0.10	2.72	0.01
	Female	1.61	0.71			
Take action to make situation better	Male	3.38	0.81	0.13	2.28	0.01
	Female	3.22	0.74			
Refuse to believe it	Male	1.35	0.58	0.21	1.55	0.01
	Female	1.46	0.67			
Seek help and advice from others	Male	2.71	0.88	0.07	3.42	0.02
	Female	2.93	0.86			
Use of alcohol and drugs to get through it	Male	1.46	0.84	0.00	9.04**	0.04
	Female	1.19	0.43			
Try to devise a strategy to deal with it	Male	3.23	0.76	0.03	4.75	0.02
	Female	3.06	0.76			
Do something to think about it less	Male	2.88	0.89	0.68	0.17	0.00
	Female	2.83	0.85			
Get advice or help from others	Male	2.62	0.91	0.03	5.10	0.02
	Female	2.90	0.88			
Think hard about what steps to take	Male	3.11	0.87	0.06	3.72	0.02

Note. 1 = I wouldn't do this at all; 2 = I would do this a little bit; 3 = I would do this a medium amount; 4 = I would do this a lot.  
 \* $p < .01$ . \*\* $p < .001$ .

stress is present. However, we surveyed students regarding their health in the fall before cold and flu season, which might account for the discrepancy with past research. If there were few illnesses to be contracted, we would have difficulty detecting weaknesses in immunity. In addition, collecting data in the beginning of the school year might not leave enough time for stress to have an effect on students' bodies. We also found no correlation between psychosomatic illnesses and stress. For example, students did not report higher occurrences of headaches or dizziness due to stress. One reason that psychosomatic symptoms may not have appeared in relation to stress is

because the stress had not yet affected them mentally. We surveyed students at the beginning of the semester, therefore their mental functioning might not have had enough time to cause illness in the body. Further research is needed in order to explore the complicated relation between stress, time, and individual physical ailments.

### Stress and Coping

Coping is an effective way to reduce stress levels. Certain coping tactics are more helpful than others. Similar to Sarmany-Schuller (1994), we found that negative coping tactics (e.g., denial and distraction)

**TABLE 5**  
**Coping by Sex (Emotion-Focused)**

Coping tactic	Sex	<i>M</i>	<i>SD</i>	<i>t</i>	<i>F</i>	$\eta^2$
Seek emotional support	Male	2.49	0.86	0.00	16.78**	0.07
	Female	2.98	0.87			
Let unpleasant feelings escape	Male	2.05	0.83	0.03	4.79*	0.02
	Female	2.29	0.78			
See it in a more positive light	Male	2.86	0.87	0.94	0.01	0.00
	Female	2.86	0.80			
Criticize oneself	Male	2.44	1.00	0.01	7.08*	0.03
	Female	2.11	0.77			
Get comfort and understanding from someone	Male	2.64	0.95	0.00	16.55**	0.07
	Female	3.14	0.84			
Look for something good in what has happened	Male	2.89	0.82	0.89	0.02	0.00
	Female	2.90	0.90			
Make fun of the situation	Male	2.89	0.90	0.00	13.95**	0.06
	Female	2.42	0.89			
Accept the reality of what has happened	Male	3.13	0.84	0.10	2.69	0.01
	Female	2.94	0.76			
Express negative feelings	Male	2.49	1.00	0.54	0.38	0.00
	Female	2.57	0.79			
Find comfort in religion	Male	2.28	1.04	0.08	3.13	0.02
	Female	2.71	2.10			
Learn to live with it	Male	2.80	0.92	0.60	0.28	0.00
	Female	2.73	0.78			
Blame oneself	Male	2.06	0.90	0.90	0.02	0.00
	Female	2.05	0.77			
Prayer and meditation	Male	2.18	1.10	0.02	5.74	0.03
	Female	2.54	1.06			
Make fun of the situation	Male	2.39	1.01	0.00	24.30**	0.10
	Female	1.76	0.84			

Note. 1 = I wouldn't do this at all; 2 = I would do this a little bit; 3 = I would do this a medium amount; 4 = I would do this a lot.  
\**p* < .01. \*\**p* < .001.

do not decrease stress levels. In fact, they positively relate to stress. This discovery helps explain why college students who avoid, deny, and ignore problems associated with stress fare worse academically than those students who do not. They fail to deal with the negative effects of stress and thus suffer mentally and physically. For example, men use alcohol and drugs as a way to deal with or avoid stress, and this behavior can be detrimental to their health. The relation

between stress and coping requires additional study because it is apparent that coping strategies do affect stress level both positively and negatively.

**Coping and Physical Ailments**

Previous research also states that individuals who utilize problem-focused coping display lower levels of physical symptomatology (Pakenham, 2001; Penedo et al., 2001; Roesch & Weiner, 2001). Our

findings agree with this research; only 3 of the 14 problem-focused coping strategies were negatively correlated to physical ailments. “Give up trying to deal with it” and “give up the attempt to cope” both positively correlated to gastrointestinal ailments. In addition, “thinking hard about what steps to take” correlated to an increase in the occurrence of only gastrointestinal ailments. Previous studies have suggested that certain coping tactics might have an adverse effect on physical illness (Creswell & Chalder, 2001). These negative coping tactics have adverse effects on a person’s health. Our findings support this claim in that some negative coping tactics were correlated to a higher occurrence of gastrointestinal ailments (e.g., “giving up trying to deal with it,” “giving up the attempt to cope,” and “blaming oneself”). In addition, one negative coping tactic also positively correlated to psychosomatic ailments (i.e., “blaming oneself”). Finally, there have been conflicting findings on the use of emotion-focused strategies (i.e., dealing with the emotional response to stress) in relation to illness (Pakenham, 2001; Roesch & Weiner, 2001). We also reported mixed results. Emotion-focused coping (e.g., “blaming oneself”) positively correlated to gastrointestinal ailments as well as psychosomatic ailments. These results illustrate that negative emotion-focused coping positively correlates to the physical effects of stress.

### Coping and Sex

Does sex influence what coping tactic a person will use? Research has indicated that men and women deal with stress differently (Felsten, 1998; Houtman, 1990; Kohlman et al., 1996; Mullis & Chapman, 2000; Porter et al., 2000; Ptacek et al., 1994). In the present study, men applied problem-focused coping tactics (e.g., “use of alcohol and drugs to feel better” and “use of alcohol and drugs to get through it”), a finding that illustrates that men use more problem-focused and avoidant strategies. On the other hand, women employed more emotion-focused coping tactics (e.g., “seeking emotional support,” “getting comfort and understanding from someone,” or saying things to “let unpleasant feelings escape”). Men also used emotion-focused coping tactics (e.g., criticizing oneself, making jokes about the situation, and making fun of the situation). These emotion-focused tactics are more active, which is why men might use them significantly more than women. These findings are important because they may help the sexes more adequately cope with stress and its effects by identifying which coping tactic they use more. When a person is sick, they are prescribed medicine that specifically meets their needs. This strategy should be extended

to mental health as well. If a person feels stressed, he or she should utilize coping tactics that are most effective for his or her sex.

Our study effectively examined how stress affected college students’ health. We focused on a less studied population (college students), we looked at the correlation of numerous physical ailments to stress, and we examined how specific coping tactics impacted stress. Our study provided a broader look at the relation among stress, health, and coping. In conclusion, further research should focus on studying the differences between how the different sexes cope with stress. Stress management could become even more individualized and even more effective than it already is. Health centers at colleges around the country could use this information to help reduce stress in college students by helping them utilize coping tactics tailored for their sex.

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