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To cite this article: Dr. Camille Lloyd Ph.D. , Dr. Aris A. Alexander Ph.D. , Dr. David G. Rice Ph.D.
& Norman S. Greenfield Ph.D. (1980) Life Events as Predictors of Academic Performance, Journal
of Human Stress, 6:3, 15-25, DOI: [10.1080/0097840X.1980.9936094](https://doi.org/10.1080/0097840X.1980.9936094)

To link to this article: <http://dx.doi.org/10.1080/0097840X.1980.9936094>



Published online: 09 Jul 2010.



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Life Events as Predictors of Academic Performance

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As part of a larger study, information was obtained about the life events which had occurred in the one-and ten-year periods prior to entrance into a study of 169 students at a large midwestern university. Different methods of calculating life change were utilized, and these measures were correlated with the students' subsequent grade point averages over the next three years. Results demonstrated a significant negative association between life change and academic performance for the first-and second-but not for the third-year grades. Further analysis suggested a threshold effect since the detrimental impact of life change appeared evident only after the occurrence of about 12 events in the one-year time period. Life change also was implicated as a factor in severe academic difficulty resulting in the initiation of formal academic sanctions. Specific events which occurred in excess among the poorer performing students also were reported.

There is a growing body of literature in the psychological, psychiatric and psychosomatic journals which has as its focus the role of life events in the etiology of various physical and psychiatric disorders. Two major books^{1,2} have appeared in an attempt to summarize findings and elaborate on methodological issues in the area. While there is this great interest in the relationship of life change to physical and psychiatric disorder, relatively little attention has been directed toward investigation of life change in relation to role performance. Four studies have been reported to date. One of these examined the effect of life stress on social role performance.³ Two others examined the effects of life stress on performance of the student role,^{4,5} and the

fourth study examined the effects of life stress on the performance of both the student and the occupational roles.⁶ Results, however, have not been entirely consistent. Three of these studies^{3,4,5} demonstrated a detrimental effect of life change stress on role performance, while results of the fourth study⁶ were mixed.

The first study by Cohler, Gruenbaum, Weiss et al.³ found that among a sample of community mothers, greater life stress was associated with greater impairment in the performance of the roles of housewife, mother, friend, neighbor, and daughter in the parental family. This relationship did not hold, however, for a group of mothers recently discharged from a psychiatric hospital. Since this patient group consisted of women who had evidenced long-standing adjustment difficulties with multiple hospitalizations, it was assumed that for these disturbed women life stress served only to intensify a chronic conflict in forming stable object relations.

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LIFE CHANGE AND ACADEMIC PERFORMANCE

In a second study, Harris⁴ studied college freshmen and reported that life change was inversely related to college grade point average. This relationship held regardless of the level of college readiness which was assessed by ACT (American College Test) scores and other standardized tests.

In the third study, Wildman⁵ examined the relationship of four different measures of life change to academic performance. He noted that there had been some disagreement as to the best method of assessing life change, and therefore he used four types of life change measures including (1) a total count of unique events occurring in a given time period, (2) a total count of all event occurrences (including multiple occurrences of the same event), (3) a weighted score obtained by adding the life change unit values of each unique event that occurred, and (4) a weighted score computed by multiplying the number of times an event occurred by the life change units associated with each event and then by summing across all events. Life change was assessed for both the previous one-and two-year time periods. These life change measures then were correlated with each student's grade point average (GPA) for that semester and with each student's difference grade point average (formed by subtracting the student's accumulated GPA at the end of the previous semester from the GPA for the last semester examined).

Results indicated that the one-year time period prior to analysis showed a stronger relationship to grades than did the two-year time period. Results also suggested that while the weighted scores had a slight advantage over a simple counting of events, the difference was probably not of sufficient magnitude to warrant the more complex measure. It was also noted that the occurrence of unique events rather than the multiple occurrence of events bore the strongest relationship to grades. Pearson correlation coefficients for these four measures with the semester GPA ranged from $r = -.12$ (*ns*) to $r = -.23$ ($p < .01$). A separate analysis also found evidence of a curvilinear relationship between life change and grades for some of the measures. A final analysis pointed toward the presence of a threshold effect, that is, life change seemed to affect grades adversely only after a certain amount of change had occurred. The relationship between life change and academic performance seemed to increase markedly as the analysis was restricted more and more to the upper segments of

the life change distribution.

In contrast to these positive findings are the more mixed results reported by Clinard and Golden.⁶ These authors studied 105 student volunteers to assess the relationship of life change occurring in the previous three years with 16 different academic and job-related performance criteria. These investigators found only four performance criteria to be significantly associated with the total weighted life change scores. These performance criteria were number of promotions, number of raises, number of previous jobs, and personal injuries or illnesses. Each of these four criteria, however, also represents a life event in itself. This might account for some of the observed associations and thus cast doubt on the existence of a causal relationship. Furthermore, greater life change was associated with positive outcomes (promotions and raises) as well as with negative outcomes (personal injuries or illnesses). Also of note is the finding that two of the major measures of role performance—appraisal of job performance and grades—were unrelated to the three-year weighted life change score ($r = -.04$ and $-.07$ respectively). Similarly, life change was unrelated to the number of hours of study, missed classes, class tardiness, missed tests, cramming for tests, and taking pills in preparation for tests. It was thus evident that life change did not seem to exert much detrimental effect on task performance while raising the possibility that it might actually be associated with some positive outcomes.

In the face of conflicting reports, further study seemed justified. The purpose of the present study was to provide additional information about the relationship of life change stress and academic role performance. This investigation, however, was designed to avoid one of the problems inherent in the previously cited studies. This limitation relates to the difficulties with retrospective studies. All of the four studies reviewed were chiefly retrospective. Cohler et al.³ asked about social role performance at the same time they asked about preceding life events. Clinard and Golden⁶ asked their respondents about grades at the same time life change was measured. In both Harris⁴ and Wildman's⁵ studies the life change measure was obtained late in the semester in which grades were collected. Such a methodological design leaves the findings open to the criticism that the individuals showing a deficit in role performance may simply demonstrate a positive bias in the recall

of events because they are seeking to understand the reasons for their decreased performance.

A prospective study does not lend itself to this alternate explanation and tends to strengthen a causal interpretation that life events can effect role performance. The present study was designed then to answer the question of whether one could prospectively establish a relationship between life change stress and impaired academic performance. In seeking to answer this question, several different measures of life change were utilized, thus providing additionally valuable information about the relative efficiency of these measures. Furthermore, to supplement the objective counting and weighting of events, students assigned subjective weights to their personally experienced events. Thus the subjective and objective weighting systems could also be compared. While it has been argued that subjective weights are of no value in attempting to establish an etiological role for events, they may be of use in predictive studies attempting to identify individuals who are at high risk for impaired performance or impaired health.

The present study was interested in four additional questions. First, is it possible to replicate Wildman's⁵ finding of a threshold effect? Second, is life change stress implicated in those cases in which a student performs poorly enough to be the recipient of some type of formal academic action (probation, dismissal, etc.)? In asking this question one is asking not only whether life event stress can exert some negative impact on the students' overall grade point performance, but also can the impact be sufficient to show a relationship to the institution of formal academic actions. Third, is there a subset of events which are found to occur in particular excess among low performing as compared to high performing students? This question relates to what might be called a "specificity question"—that is, whether all events contribute to this effect or whether the relationship is due to a few specific events or subsets of events.

The fourth and last question falls into the arena of mediating factors. In a review by Rabkin and Struening⁷ it was convincingly pointed out that it is necessary to examine factors that might mediate the impact of stressful events. Among the potential mediating factors they suggested were personality and social support factors. Phrased more explicitly, an individual's physical and psychological well-being

might be related not only to the amount of recent stress to which he/she had been exposed, but also to the person's psychological coping abilities and to the social support available to help him/her cope with the stress. At least three recent articles have examined personality factors that might mediate the relationship. Manuck, Hinrichsen and Ross⁸ have implicated locus of control as a potential mediating variable, while Smith, Johnson and Sarason⁹ have identified the sensation-seeking motive as another potential mediating variable. In a particularly comprehensive study Kobasa¹⁰ reported that business executives who did not succumb to illness despite high levels of stress were characterized by their sense of commitment to (or lack of alienation from) self, their sense of meaningfulness in life, their sense of vigorousness or challenge, and their internal locus of control. Other articles by Nuckolls, Cassel and Kaplan,¹¹ by Miller, Ingham and Davidson¹² and by Brown and Harris¹³ in London have demonstrated the importance of social support factors.

In this study, therefore, one personality variable, ego strength, was examined for its role as a possible mediating factor. This variable was selected because it appeared to measure a general factor of personal resourcefulness. Barron¹⁴ asserted that the scale tapped latent strengths which served as assets in times of psychological crisis, and he demonstrated that the scale was predictive of psychotherapy outcome. He believed that the following characteristics were collectively referred to as ego strength: (1) physiological stability and good health, (2) a strong sense of reality, (3) feelings of personal adequacy and vitality, (4) permissive morality, (5) lack of ethnic prejudice, (6) emotional outgoingness and spontaneity and (7) intelligence. It thus was assumed that a measure of ego strength would tap in a general way the personality attributes that would be assets in coping with stressor events. The fourth and final question asked then was whether or not the addition of this ego strength variable could add significantly to the life event measures alone in the prediction of academic performance.

METHODOLOGY

Subjects

The life change questionnaire and grade point averages were collected as part of a larger study examining genetic factors in personality functioning and in psychophysiological responses to stress. All

students enrolled at the University of Wisconsin who were twins were identified from admission records and were requested to participate in the study. Whenever possible, each student's twin or remaining triplet also was recruited to participate. Additionally, other siblings of these twins were contacted and participated when possible. Not all of these twins or siblings were students. In total, 110 men and 105 women volunteered for the study. Of these 215 individuals, 208 completed the life change measure. Grades were obtained through the university registrar for 165 of the student participants for the first year of the study, for 122 of the students in the second year and for 106 students in the third year of the study. This decrease in sample size over time occurred as the students were graduated, transferred, or dropped out of the university.

Procedure

Each participant completed a series of paper and pencil questionnaires which included, among other measures, the Barron Ego Strength Questionnaire,¹⁴ 40 items very similar to those on the Schedule of Recent Events, and a form for rating the life events as to their subjective degree of necessary readjustment (using the same procedure as the Social Readjustment Rating Questionnaire¹⁵). This revised list differed from the original scale on three items. First, Christmas was omitted from the study since it was assumed that this event would have been experienced by all participants for each of the years. Secondly, pregnancy was not listed as a separate event but included in the event "major personal injury or illness" since it may have been a sensitive issue for some unmarried women. Thirdly, marital separation and marital reconciliation events were listed under a single new event—"a lot more or a lot less contact with your spouse" (for example, marital separation, reconciliation, etc.).

On the Schedule of Recent Events, participants were asked about events occurring in each of the 10 years prior to beginning the study. Table 1 lists the 40 events included for study along with additional information which will be explained subsequently. The first 12 items referred to general life-style changes such as changes in eating or sleep habits, or changes in church, recreational or social activities, whereas the remaining 28 items referred more to actual events such as deaths, residential changes or

divorces. For the first 12 events listed, each participant was asked to indicate the years in which there had been a change in these areas. For the remaining 28 events, the participant was asked to indicate the number of times the event had occurred during each of the previous 10 years. By using different instructions for these two subsets of items, it was hoped that a more objective measurement of stress could be obtained. This procedure allowed for taking into account multiple occurrences of actual events in determining the total stress scores, but limited the contribution that presumably more subjective items such as habit or activity changes could make to the total stress scores, thus lessening the impact of subjective biases.

Each participant's event list then was scored in five different ways. First, the Total Number of Events score was calculated by counting the number of events occurring in the year preceding entrance into the study. Secondly, the Number of Unique Events was obtained by counting unique event occurrences in the preceding year, ignoring the number of times, if more than once, that an event took place. The Objective Weighted Event Total was calculated by assigning weights to the events occurring in the year preceding the study. This measure did take into account multiple event occurrences. These weights are also listed in Table 1 and were obtained by asking participants to weight all events in the same manner as that originally reported by Holmes and Rahe.¹⁵ The means of these weights were obtained and then divided by 100 and rounded off to the nearest whole number. This procedure simplified computations and allowed for use of a weighting system specific to college students. These objective weights actually showed a correlation of $r = .96$ ($p < .001$) to those originally reported. A Ten-Year Objective Weighted Total score also was obtained for each participant. This was determined in the same manner as the Objective Weighted Event Total, but calculated over the entire 10-year period rather than over the preceding year only.

Finally, a Subjective Weighted Event Total was obtained by multiplying the weight assigned by the individual participant to each event by the number of times that event occurred in the year before the study and then by summing all of these scores.

In this manner each individual actually received five life change scores, one of which was a subjective estimate of stress and four of which were assumed to

TABLE 1
LIST OF EVENTS, THEIR OBJECTIVE WEIGHTS AND
FREQUENCY OF OCCURRENCE

Event	Weights	Frequency of Occurrence		X ² If Significant
		Among High Achievers	Among Low Achievers	
1. Trouble with boss	3	1	4	
2. Change in sleeping habits	2	9	16	3.09*
3. Change in eating habits	2	10	15	
4. Change in personal habits	3	11	14	
5. Change in recreation	2	7	20	10.38***
6. Change in social activities	3	18	21	
7. Change in church activities	2	7	13	
8. Change in number of family get-togethers	2	3	8	2.71*
9. Change in financial state	4	13	16	
10. Trouble with in-laws	3	0	1	
11. Change in number of arguments with spouse	3	0	0	
12. Sex difficulties	4	10	14	
13. Personal injury or illness	5	6	5	
14. Death of close family member	6	3	2	
15. Death of spouse	8	0	0	
16. Death of a close friend	4	4	5	
17. Gain of new family member	4	3	0	
18. Change in health or behavior of family member	4	2	7	
19. Change in residence	3	20	14	
20. Jail term or detention	5	0	1	
21. Minor violations of the law	1	2	5	
22. Major change in business (merger, reorganization, etc.)	4	0	1	
23. Marriage	5	0	0	
24. Divorce	6	0	0	
25. Change in amount of contact with spouse (separation = 6) (reconciliation = 4)	5	0	0	
26. Personal achievement or success	3	18	13	
27. Son or daughter leaves home	3	1	3	
28. Retirement	5	0	0	
29. Change in work hours or conditions	2	14	14	
30. Change in work responsibilities	3	3	10	4.66**
31. Fired at work	4	0	1	
32. Change in living conditions	3	6	8	
33. Wife begins or stops work	3	1	0	
34. Mortgage or loan less than \$10,000	2	0	0	
35. Mortgage or loan more than \$10,000	3	3	5	
36. Foreclosure of mortgage or loan	3	0	0	
37. Vacation	1	22	23	
38. Change in schools	3	12	15	
39. Change to new line of work	4	6	12	3.84**
40. Begin or quit formal schooling	4	8	10	

*p < .10
**p < .05
***p < .01

reflect an objective estimate of life stress.

In addition to completing these paper and pencil questionnaires, participants were asked to submit to

a battery of physiological measurements. Whenever possible, subjects returned once yearly for the next three years for follow-up physiological measures.

TABLE 2
MEANS AND STANDARD DEVIATIONS FOR EACH VARIABLE

Variable	Mean	Standard Deviation	Number of Cases
Total Number of Events	10.32	5.89	208
Number of Unique Events	8.30	4.32	208
Objective Weighted Event Total	28.63	16.27	208
Ten-Year Objective Weighted Total	112.60	51.96	204
Subjective Weighted Total	2545.68	1934.34	207
First-Year Grade Point Average	2.63	.72	169
Second-Year Grade Point Average	2.88	.59	124
Third-Year Grade Point Average	3.02	.59	107

TABLE 3
SUMMARY OF CORRELATIONS BETWEEN LIFE EVENT MEASURES AND GRADE POINT AVERAGES

Life Event Measure	GPA 1	GPA 2	GPA 3
Total Number of Events	-.12	-.18*	-.04
Number of Unique Events	-.15*	-.19*	-.10
Objective Weighted Event Total	-.15*	-.18*	-.05
Ten-Year Objective Weighted Total	-.06	-.21**	-.08
Subjective Weighted Event Total	-.18**	-.23**	-.14
	N = 165	N = 122	N = 106

*p < .05
**p < .01

This data is not relevant to the presently reported data.

One additional methodological note is important. Participants were recruited over a several-month period in the fall of 1966. The first year GPA covered the 1966-67 academic year. Therefore, the first year GPA is not a totally prospective measure. The second- and third-year GPAs, however, provide totally prospective data.

RESULTS

Life Event Measures and GPA

Means and standard deviations for each of the life event measures and for yearly grade point averages are presented in Table 2.

Correlations between the various life change measures and grade point averages are presented in Table 3.

Results obtained from the objective measures of

life stress reveal that two of the four measures showed a significant association with the first-year GPA. Correlations with the measures ranged from $r = .06$ (ns) for the Ten-Year Objective Weighted Total to $r = -.15$ ($p < .05$) for both the Number of Unique Events and the Objective Weighted Event Total measures. Correlations with the second-year GPA were significant for all four objective measures and ranged from $r = -.18$ ($p < .05$) to $r = -.21$ ($p < .01$). Not one of the four objective measures demonstrated a significant relationship to the third-year GPA.

In reviewing results of the subjective measure of life change, there was a significant relationship with both the first-year GPA ($r = -.18$, $p < .01$) and the second-year GPA ($r = -.23$, $p < .01$). The relationship was not significant by the third year ($r = -.14$).

From the table, it appears that the subjective measures demonstrated a slightly stronger relationship to academic performance than did the

TABLE 4
CORRELATION MATRIX OF LIFE EVENT MEASURES

Life Event Measure	Number of Events	Number of Unique Events	Objective Weighted Event	Subjective Weighted Event
Number of Events	—			
Number of Unique Events	.92*	—		
Objective Weighted Event Total	.96*	.92*	—	
Subjective Weighted Event Total	.75*	.75*	.77*	—
Ten-Year Objective Weighted Total	.64*	.52*	.62*	.45*

N = 207
*p < .001

TABLE 5
CORRELATIONS OF THE SECOND-YEAR GRADE POINT AVERAGE
WITH UPPER SEGMENTS OF THE LIFE EVENT DISTRIBUTION

Life Events	Life Events ≥ 8	Life Events ≥ 10	Life Events ≥ 12	Life Events ≥ 14	Life Events ≥ 16
Correlation Coefficient	r = -.16	r = -.17	r = -.29*	r = -.37*	r = -.24
Number of Students in the Sample	N = 77	N = 59	N = 42	N = 26	N = 15

*p < .05

objective measures. It also appears that the objective measures, particularly the one-year measures, were providing very similar information. To further assess the similarities of these measures a correlation matrix was generated and is presented in Table 4. Correlations among the one-year objective measures ranged from $r = -.92$ ($p < .001$) to $r = .96$ ($p < .001$), thus suggesting that these measures seem to provide very similar information. The subjective measure, however, is providing some different information, and shows a more moderate relationship to the three one-year objective measures ranging from $r = .75$ ($p < .001$) to $r = .77$ ($p < .001$). The Ten-Year Objective Weighted Total also showed a moderate relationship to the three objective measures and the subjective measure with correlations ranging from $r = .45$ ($p < .01$) to $r = .64$ ($p < .01$).

Testing for a Threshold Effect

Since Wildman's⁵ research had pointed to a possible threshold effect, individuals were subdivided into various groups depending upon the

number of life events they had experienced in the year preceding the study. Then correlations were computed for each of these subgroups with the second-year GPA. A decision was made to use the second-year grades because these represented totally prospective data and had shown a stronger relationship to life change than had the first-year grades. Table 5 presents the results of this analysis. Results do seem to suggest some type of threshold effect since the size of the correlation coefficients jumps markedly when only those participants with 12 or more events are studied. The highest correlation is found when the analysis is restricted to those individuals with 14 or more events ($r = -.37$, $p < .05$). There is a decrease in the size of the correlation when the analysis is restricted to those with 16 or more events, although the size of the sample becomes rather small by this point ($N = 15$). These findings indicate that the observed association between life change and academic performance is due principally to those cases where more than 12 events occurred. When the entire sample is divided into two

TABLE 6
COMPARISON OF LIFE EVENT SCORES
FOR ACADEMICALLY SANCTIONED AND NON-SANCTIONED STUDENTS

Life Event Measures	Group	Mean	Standard Deviation	F Value for Variance Test	t Value
Unique Events	Academic Sanction	9.28	4.60	1.30	1.89*
	Comparison Students	7.85	4.03		
Total Events	Academic Sanction	11.59	6.15	1.40	2.02*
	Comparison Students	9.58	5.20		
Objective Weighted Events	Academic Sanction	32.85	18.56	1.73*	2.03*
	Comparison Students	26.46	14.09		
Subjective Weighted Events	Academic Sanction	3181.59	2255.59	1.89**	2.43**
	Comparison Students	2236.77	1640.17		

*p < .05

**p < .01

subgroups, those with fewer than 12 events and those with 12 events or more, the following correlations were respectively obtained: $r = -.05$ ($N = 80$, ns) and $r = -.29$ ($N = 42$, $p < .05$).

Life Change and Formal Academic Difficulty

During the three years of the study, 41 students had academic problems of sufficient severity that some type of formal academic action was taken against them. The life event scores of this group of students were compared with those of the remaining participants who were students ($N = 128$). The 30 non-student participants were eliminated from this analysis to avoid introducing a negative bias into the significance tests. Results of the one-tailed t tests for each of the life event measures are presented in Table 6. As can be seen from the table, both the Unique Number of Events measure and the Total Number of Events measure revealed a higher amount of life change among those students receiving academic sanctions. For both the Objective Weighted Event measure and the Subjective Weighted Event Total measures, the academic sanction group demonstrated a significantly larger variance. Since the assumption of homogeneity of variance was thus violated, it was necessary to use t tests where the pooled variance estimate was not made. Nevertheless, the academic sanction group demonstrated significantly higher life event scores on both of these measures as well.

These results clearly seem to implicate excessive

life change as a factor in severe academic difficulty.

The Question of Specificity of Events

In order to test whether there are specific life events which occur in excess among those with poorer academic performance, an event frequency distribution was constructed for those students in the upper and lower 30 percent of the second-year class. The second-year GPA was chosen again for analysis because of its clearly prospective nature and because of its demonstrated relationship to life change. Table 1 presents this frequency distribution and the resulting chi square values for the significant events. (The Yates correction for discontinuity was used whenever an expected cell frequency was less than 5.) Results indicate that only three events occurred with greater frequency among the poorer students. They were: (1) change in recreation, (2) change in work responsibilities, and (3) change to new line of work. These were all significant at the $p < .05$ level or lower. There was also a trend toward a greater occurrence of change in sleeping habits and in number of family get-togethers.

In order to provide further information about which life events may occur in excess among poorly performing students, a comparison of the frequency of unique event occurrences was made between academically sanctioned students and the remaining non-sanctioned comparison students. These frequency distributions and chi square analyses revealed that only one event, that of a change in line

TABLE 7
SUMMARY OF MULTIPLE REGRESSION ANALYSIS

Variable	Beta	Simple <i>r</i>	Cumulative <i>R</i>	Overall <i>F</i>
Objective Weighted Events	-.641	-.177	.177	3.85*
Ego Strength	-.528	-.005	.183	2.05
Interaction Term	.633	.134	.212	1.84

* $p < .05$

of work, occurred significantly more often in the sanctioned group ($p < .01$). Three other events evidenced a trend ($p < .10$) toward excess occurrence, and these were: (1) change in work hours or conditions, (2) change in work responsibilities and (3) residence change.

Ego Strength as a Mediator of Life Stress

The final area of interest concerned whether the inclusion of the ego strength variable could add significantly to the life change measure in the prediction of academic performance. To test this a multiple regression procedure was carried out utilizing the Objective Weighted Event Total scores, Barron's Ego Strength scores, and their interaction term. The interaction term was formed by multiplying together the standardized scores on the event and ego strength measures. This term was included since some previous studies of mediating factors had hinted at the importance of an interaction between life event stress and social support¹¹ and of an interaction between life event stress and a personality variable called the sensation seeking motive.⁹ In the multiple regression analysis, the event scores were selected to enter the equation first, followed by the ego strength score and the interaction term respectively. Results of this stepwise analysis are presented in Table 7. The multiple *R* of .212 with 3 and 117 degrees of freedom was not significant ($p = .14$). The ego strength measure itself proved to be virtually unrelated to the second-year grade point average ($r = .005$), and consequently it could not add any information to that provided by the life event measure. The interaction term demonstrated a larger association ($r = .13$) but also failed to reach significance. With the addition of both the ego strength and the interaction scores, the correlation coefficient rose only slightly from $r = .177$

to $r = .212$. The life event measure thus accounted for 3.1 percent of the variance in the second-year grade point averages, and the addition of the two other variables accounted for only an additional 1.4 percent of the variance.

DISCUSSION

Results of this prospective study seem to corroborate findings from two earlier retrospective studies^{4,5} in which life event stress showed a significant negative correlation with academic performance. With the addition of this prospective data, a causal interpretation is strengthened. It thus appears that too much life stress can have a detrimental effect on academic performance. In reporting these findings, it should be noted that the unusual nature of the sample (i.e., twins, triplets and their siblings) may limit the generalizability of findings. However, since these results are very consistent with earlier reports, this concern can be partially lessened.

It is also of interest that even the 10-year objective stress score demonstrated some relationship to academic grades. While the 10-year total stress score was unrelated to the first-year grades ($r = .06$), it was significantly correlated ($r = -.21$) with the second-year grades. The size of the difference in these correlation coefficients for the two academic years was greater than that seen for the one-year measures. Thus the relationship did not appear as reliable, although the size of the relationship for the second-year grades was the highest observed. Since recent work by Jenkins, Hurst and Rose¹⁶ has shown that there is a substantial tendency to forget events over time, perhaps one could expect results of the 10-year measure to be less reliable.

In this study, correlations between event stress and subsequent academic grades were found to be

slightly higher in the second year than in the first. This may indicate that there is a lag time between the event occurrences and their adverse effects. By the third year, however, correlations had diminished and were no longer significant. This would indicate that the adverse effects will decrease in time. Results also demonstrated an excess of life event stress in the lives of those students against whom formal academic sanctions were brought.

Findings also seemed to support Wildman's⁵ earlier claim that some type of threshold effect is operative. He noted that the relationship between events and grades increased markedly as the analysis was restricted more and more to those persons in the upper segments of the life event distribution. He selected 12 or more events as the point at which life change appeared to have an adverse effect on grades. Interestingly enough, it was at this same point (12 events) that the adverse effects became apparent in the current study. Perhaps it is at this point that the individual begins to experience a strain on his/her coping processes. At this point there may be too much change, too much stress, and the individual's coping capacities are overloaded.

In looking at the specificity question, three of the forty events occurred in excess among the poorer performing students. Two of these (change in work responsibilities and change to new line of work) were work related. One might wonder then if this group of poor performers contained an excess of individuals who were both working and going to school. If this were the case, it could be argued that such a group might be less invested in school in the first place. However, another likely explanation might again suggest a concept of overload. Perhaps these students simply were attempting to cope with too many demands — demands at school and at work. The poorer performing group was also significantly more likely to report a change in recreational habits. Is it possible that with so many demands on their time they also had less time available for recreation? If these students were experiencing too many demands, then they might also evidence a decrease in their other activities, such as in their social activities, church activities, and number of family get-togethers. In reviewing Table 5, it appears that the poorer students did indeed show more changes in these areas, albeit this was not a statistically significant excess. One might suspect that if these students were experiencing too many demands, then

their everyday personal routines might also evidence a disruption. Again, the more poorly performing students evidenced more changes in both eating and sleeping habits, although these changes were not statistically significant.

An excess occurrence of work-related events also was observed among the academically sanctioned students. This, too, would be consistent with the presumed presence of inordinate demands on those students attempting to cope with both school and work requirements. This is a speculative discussion, but points out that such a pattern of excess events may be consistent, as is the presence of a threshold effect, with a concept of overload or strain. That is, when a person is exposed to too many demands, then there is a strain on coping capacities and detrimental effects are observed. Indeed, Selye's¹⁷ general adaptation syndrome describes "strain" at a physiological level and Wolff¹⁸ has discussed "strain" as the organism's alterations as a result of the stress.

Despite the current and past support for the hypothesized relationship between life change and academic performance, the relationship appears to be a weak one. Correlations between the objective measures and the first two years' grades were in the neighborhood of $r = -.12$ to $r = -.19$. Wildman's⁵ study produced similar correlation coefficients, ranging from $r = -.12$ to $r = -.23$. Such low correlations cannot provide much hope for their usefulness in predicting individuals at risk. The correlations obtained when subjective scores were utilized demonstrated only a slight advantage (ranging from $r = -.18$ to $r = -.23$). It is evident then that mediating factors will have to be examined both to add to our understanding of etiological processes and to assist in the development of procedures having practical utility in identifying individuals at risk. However, the inclusion of the ego strength variable in this study was of very little value because of its failure to show any relationship to academic performance. The interaction of this personality variable with life event stress proved slightly more encouraging. Hopefully, future research will identify more prominent mediating factors. In this regard, preliminary findings suggest that individuals with the most resiliency to stress are those persons who have a clear sense of themselves and their own importance, who find life meaningful, who tend to feel in control of life's outcomes, and who tend to appreciate the stimulating and challenging aspects of change.

This research was supported in part by NIMH Research Grant 12858.

The authors would like to thank Maurice Click, Jr., M.P.H., for his help in the statistical analysis of this project.

INDEX TERMS

life change events, psychological stress, and students.

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