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Assessing The Impact of Life Change: Additional Correlates of The Life Experiences Survey

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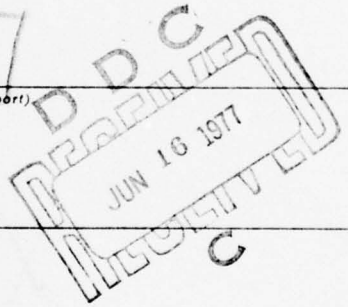

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In a previous Technical Report (Sarason & Johnson, 1976) we described the development of a new measure of life stress, The Life Experiences Survey (LES), and presented preliminary data related to the usefulness of this scale. The present report presents the results of several additional studies which provide information concerning additional correlates of this measure. Variables found to be related to LES scores include measures of personal maladjustment, depression and locus of control. The scale was also found to successfully discriminate between normals and counseling center clients. Special attention

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is also given to the importance of considering moderator variables in life stress research.

Assessing the Impact of Life Change: Additional Correlates of the Life Experiences Survey[1]

A major area of research interest during recent years has been the relationship between life stress on the one hand and physical and psychological problems, on the other. Much of this research has been guided by the assumption that life changes experienced by individuals are stressful to a greater or lesser degree and that individuals experiencing marked degrees of change are especially susceptible to the development of health related and personal difficulties. Life stress has been found to correlate with myocardial infarction (Edwards, 1971; Theorell & Rahe, 1971), sudden cardiac death (Rahe & Lind, 1971), major and minor health changes (Holmes, 1970; Rahe 1968), seriousness of chronic illness (Wyler, Masuda, & Holmes, 1971), academic performance (Harris, 1972), teacher performance (Carranza, 1972), psychiatric symptomology (Paykel, Myers, Dienelt, Klerman, Linderthal, & Pepper, 1969; Dekker & Webb, 1974; Coates, Moyer, Kendall & Howat 1976) and variables such as anxiety and depression (Vinokur & Selzer, 1975). An overview of much of the research in this area and a discussion of the methodology involved in these studies has been presented in a recent review by Rabkin & Struening (1976).

Along with an interest in determining the correlates of life stress, researchers have become increasingly concerned with its measurement and with theoretical issues related to assessment of degree of life stress. By far, the most widely

used instrument is the Schedule of Recent Experiences (SRE) developed by Holmes & Rahe (1967). The SRE is a 43 item, self-administered questionnaire containing a list of events which may be experienced by individuals in the general population. Respondents are asked to check those events which they have experienced in the recent past (e.g. previous 6 mos.; previous year). Specific values, termed life change units, purported to reflect the average degree of social readjustment necessitated by the experiencing of the specific events checked, are then summed to obtain a life stress score. These life change units were initially derived by having groups of subjects rate each of the 43 SRE items with regard to the amount of readjustment required by the events. In this derivation, the item "marriage" was used as an arbitrary anchor point.

While the SRE has been used widely the adequacy of this measure has been questioned on several counts (Mechanic, 1975; Sarason, DeMonchaux & Hunt, 1975; Rabkin and Struening, 1976; Sarason & Johnson, 1976; Vinokur & Selzer, 1975). Two major criticisms center around the logic of combining positive and negative life changes in deriving life stress scores and the way in which life stress has been quantified. Since it seems quite possible that desirable and undesirable life changes have different effects on people, it is important to assess them and their correlates separately.

It is also possible that life change units derived from group ratings may not accurately reflect the impact of events

on individuals. In a recent technical report (Sarason & Johnson 1976) we described the development of a new measure of life stress, the Life Experiences Survey (LES), which was designed to eliminate some of the difficulties encountered with the Schedule of Recent Experiences.

The LES is a 57 item self-report measure which requires respondents to indicate events which they have experienced during the past year. It consists of two parts. Part 1 is designed for all respondents and contains a list of 47 specific events (similar to those found in the Holmes & Rahe scale) plus 3 blank spaces in which they can refer to other events they have experienced. The events listed in Part 1 refer to life changes common to individuals in a wide variety of situations. Part 2 consists of a list of 10 events specific to the academic environment, and is designed for use with students only. Part 1 may be used alone with non student populations. Part 2 can be tailor-made so as to refer to problems encountered by particular populations (for example, members of the military services).

The LES is designed so that ratings of the desirability of events and ratings of their impact are separate and individualized. Thus, respondents are asked to indicate those events which they have experienced during the past year and further to indicate a) whether they viewed the event as positive or negative at the time of occurrence, and b) the impact of the particular event on their life. Ratings are

made on a 7 point scale (-3, extremely negative, to +3, extremely positive). The ratings of those events designated as positive provide a positive change score. A negative change score is derived by summing the ratings of those events experienced as negative by the subject. Finally, the sum of these two values yield a total change score representing the total amount of rated change (positive and negative) experienced by the subjects during the past year. As described in a previous report, (Sarason & Johnson, 1976) preliminary research with this measure supported its usefulness as a correlate of a variety of dependent measures such as, anxiety, decreased academic performance, and decreased coping abilities. It was also found that life stress scores were unrelated to the social desirability response set and sex of respondent. The pattern of relationships found between life change scores and the dependent variables studied provided strong support for the need to separate positive and negative life change. Some support was also provided for conceptualizing life stress in terms of negative life change: It was primarily the negative change score which was related to the dependent measures.

The present report presents the results of several additional studies with the Life Experiences Survey and provides information concerning additional correlates of LES scale scores.

Personal Maladjustment and the LES

To determine the degree of relationship between life stress and certain measures of personality and personal maladjustment the LES and the Psychological Screening Inventory (PSI) were administered to 75 male and female volunteers drawn from Introductory Personality courses at the University of Washington.

The PSI (Lanyon, 1971; 1973) is a 130 item true-false inventory which, when scored, yields values on five subscales: Alienation (Al), Social Nonconformity (Sn), Discomfort (Di), Expression (Ex), and Defensiveness (De). The Al score was designed for "assessing similarity to psychiatric patients", and the Sn scale for "assessing similarity to incarcerated prisoners". The Di scale appears to be a measure of neuroticism, the Ex scale a measure of the Introversion-Extraversion dimension, and the De scale a measure of test-taking attitude.

Correlations between positive, negative and total life change scores and the Five PSI scales are presented in Table 1.

Table 1

Correlations between Life Stress and PSI Scores

Les Scores	PSI Scores				
	Al	Sn	Di	Ex	De
Positive	.14	.03	-.07	.28**	.06
Negative	-.10	.20*	.23*	-.02	-.16
Total	.03	.15	-.10	.18	-.06

*p < .05
**p < .01

As may be seen in Table 1 the negative life change score was significantly related to scores on the Social Nonconformity scale and the Discomfort scale. These findings suggest perhaps a relationship between negative change, as assessed by the LES, and certain types of less severe personal maladjustment, although life stress was essentially uncorrelated with the Al scale purported to be a measure of more serious psychopathology. Since our sample was composed of functioning college students who probably display little evidence of serious disturbance, this lack of relationship seems unsurprising.

While two PSI scales were correlated with negative life change only the Expression Scale was found to correlate significantly with the positive change score. Thus, it would appear that extraverted individuals experience more positive change than do introverted persons. The correlations obtained here are of a similar magnitude to those obtained by Constantini, Braun, Davis & Iervolino (1973) in their investigation which related life stress scores, derived from the Holmes & Rahe scale to PSI scores. These investigators found, in contrast to the present findings, that the PSI Alienation scale was related to life stress although there was no relationship between life stress and Discomfort scale scores.

The pattern of relationships obtained here is consistent with those found in previous studies with the LES which have suggested the importance of the separate assessment of

positive and negative life change (Sarason & Johnson 1976). Further, the findings that negative change scores tend to correlate with measures of personal maladjustment while positive scores do not provide support for conceptualizing life stress in terms of negative change.

Depression, Locus of Control, and the LES

Scores on the LES, the Beck Depression Scale (Beck, 1967), and the Locus of Control (IE) Scale (Rotter, 1966) were obtained for a sample of 64 (34 male; 30 female) college students drawn from undergraduate psychology courses. The latter scale assesses the degree to which individuals perceive themselves as having control over their lives and environment. Individuals scoring low (internals) tend to perceive themselves as having control over environmental events while those scoring high on the scale (externals) tend to perceive what happens to them as being under the control of fate, luck, chance, or powerful others. Correlations between LES scores and these two measures are presented in Table 2.

Table 2

Correlations between Life Stress Depression and Locus of Control

Dependent Variable	LES Scores		
	Positive	Negative	Total
Beck Depression	-.15	.25*	.06
Locus of Control	-.05	.32**	.17

*p < .05
**p < .01

The finding of a significant relationship between negative change and scores on the Beck Depression Scale are consistent with those obtained by Vinokur & Selzer (1975) who found negative change to be related to self ratings of depression and with those of Paykel (1976). An additional finding of interest here is that individuals who have experienced high levels of negative life change appear to be more externally oriented perceiving themselves as being incapable of controlling reinforcement contingencies in their environment.

Comparisons of Normals and Counseling Center Clients

In addition to the correlational finding presented above, we have also obtained life change scores on a small group of students who, at the time of testing, were receiving treatment at the University Counseling Center for psychological problems of various types. It was predicted that this group would differ from a randomly selected group of normals in terms of negative change scores but not in terms of positive change. The sample consisted of 18 students (16 females; 2 males). For purposes of comparison LES records of 18 (16 females; 2 males) students were selected at random from protocols obtained from students enrolled in Introduction to Personality courses at the University of Washington (undergraduates at all academic levels are enrolled in these courses). Mean positive, negative, and total change scores for these two groups of subjects are presented in Table 3.

Table 3

Life Stress Scores of Normals and Counseling Center Clients

Group	Positive Change		Negative Change		Total Change	
	Mean	SD	Mean	SD	Mean	SD
Normals N = 18	10.55	8.26	9.61	9.89	20.16	11.48
Counseling Center Clients N = 18	8.33	5.83	16.61	9.37	24.94	10.91

No significant differences were obtained between the two groups when the positive and total change scores were considered. The Counseling Center clients did however display significantly higher negative change scores than did the comparison group ($t = 2.21$, df 34, $p < .05$). In order to rule out the possibility that these findings are unique to the random sample selected for comparison, a second comparison group ($n = 18$) was randomly drawn from the completed LES protocols of a large group of Introductory Psychology students. Again it was found that these two groups differed in terms of negative life change ($p < .01$) but not in terms of total or positive change scores. While the sample sizes under consideration here are small, the results seem to be quite consistent with other findings reported here and by Sarason & Johnson (1976) which tend to support the importance of negative life change.

Life Stress and Personal Maladjustment:

The role of moderator variables

An important question to be considered in life stress research concerns the role of moderator variables. When it plays a role, life stress may not have a uniform effect on all individuals. Some individuals may be greatly affected while others may be affected hardly at all. If this is true it becomes important to identify the variables that mediate the effects of life change. In a study which was conducted in collaboration with Ronald E. Smith we have recently examined the role of one possible moderater variable, the individuals optimal level of stimulation.

Zuckerman, Kolin, Price & Zoob (1964) have operationalized the construct of "optimal level of arousal" or "optimal level of stimulation" by constructing a scale to assess sensation seeking. Their scale contains 22 items and seems to assess the need to engage in thrill seeking, risk taking, and novel activities. It is assumed that high sensation seekers (who presumably display a high optimal level of arousal) seek out change while low sensation seekers (who presumabely have a low optimal level of arousal) seek to minimize change and arousing stimulus input. Based on these differences it would appear reasonable to expect that low sensation seekers would be more negatively affected by life changes than high sensation seekers.

To assess the role of sensation seeking as a moderator variable we obtained sensation seeking scores on those

individuals who had previously completed the LES and the Psychological Screening Inventory (PSI). To test our hypothesis the Discomfort (Di) scale of the PSI was employed. This scale is purported to be a measure of neuroticism and is, perhaps, the PSI scale most likely to tap the type of difficulties displayed by college students. Subjects scoring above and below the median in terms of life change scores and sensation seeking scores were considered within a 2 x 2 factorial design (high life stress - high sensation seeker; high life stress - low sensation seeker; low life stress - high sensation seeker; low life stress - low sensation seeker). Scores on the PSI Discomfort scale served as the dependent measure. As would be expected from the correlations presented earlier no main effects or interactions were found when the positive and total change scores were considered. Results did, however, indicate a significant main effect for negative life change ($F = 4.75$, df 1.71, $p < .05$). High life change subjects ($\bar{X} = 10.97$) displayed higher Di scores than did low life change subjects ($\bar{X} = 8.71$). Duncans multiple-range tests of cell differences showed no significant differences between high sensation seekers who differed in negative life change. However, among low sensation seekers, high negative change subjects had significantly higher ($p < .05$) Di scores ($\bar{X} = 12.44$) than those who had experienced low levels of negative change ($\bar{X} = 9.00$). The moderating effect was also indicated by an additional correlational analysis disclosing a significant relationship ($r = .35$, $p < .01$) between negative change

and Di scores in low sensation seekers, but no significant relationship ($f = .15$) in high sensation seekers. While further studies employing other dependent variables are necessary to confirm this finding, these results suggest that optimal level of stimulation may be a variable playing a role as a moderator of the effects of life stress on individuals.

Discussion

Results obtained from these studies, combined with those reported earlier (Sarason & Johnson, 1976), support the usefulness of the Life Experiences Survey as a measure of life stress. This is suggested by the findings showing that negative life change scores, derived from this measure are significantly related to a number of stress-related dependent measures. The fact that the dependent variables employed in the studies reported here correlate with negative change scores and not with positive change suggests that the separate assessment of positive and negative change by the LES represents a useful distinction. These findings also provide support for the notion that life stress may be most accurately conceptualized in terms of negative change rather than in terms of total change.

Although the obtained results pertain primarily to the role of negative change, the failure to find significant correlations between positive change and the dependent measures may be related to the unreliability of the positive

change score (see Sarason & Johnson 1976) rather than reflecting the unstressful nature of positive life change. The previously cited findings by Vinokur & Selzer (1975) which are totally in line with the present results, would, however, seem to support the conclusions reached above which emphasize the importance of negative change.

In addition to considering the relative importance of positive and negative change it would also seem important to consider the magnitude of the relationships obtained in the studies reported here. Although significant correlations between life change scores and stress related dependent measures were found in this research the magnitude of the correlations was in most instances quite low. This suggests that life stress accounts for relatively little of the variance reflected in these measures. This finding of significant but low correlations is consistent with evidence in the life stress literature using other life change measures. Given this state of affairs it seems appropriate to question whether these findings reflect the inadequacy of present life stress measures or if it is in fact reasonable to expect such measures to correlate highly with stress related variables. Concerning the latter possibility, as suggested earlier, it seems likely that the effects of life stress differ from person to person depending on their individual characteristics. Some persons may be greatly affected by change while others may be affected little or not at all, by even relatively high levels. If this is the case it may not be unreasonable to expect correlations of the low

magnitude which have typically been obtained. Perhaps we can expect to find strong relationships and achieve greater predictibility only as those variables determining the effects of life change are determined and taken into account.

To date relatively little research has been directed toward investigating the role of moderator variables, although the research that has been conducted has been fruitful. To illustrate Nuckolls Cassel & Kaplan (1972) have investigated the relationship between life stress and pregnancy and birth complications. No significant relationship was found between these variables when all subjects were considered. When mothers were divided into those who displayed high and low levels of "psychosocial assets", however, significant results were obtained. Subjects showing high levels of both life change and psychosocial assets (support systems in their environment) did not show evidence of increased complications. Those who displayed high levels of life change and who evidenced low levels of psychosocial assets did have an increased frequency of such complications. These results suggest that the effects of life change may be influenced to some extent by the degree to which individuals possess adequate environmental support systems. The possible role of "optimal level of stimulation" as a moderator variable has also been suggested by the findings presented earlier in this report. Thus, it would appear that both sensation seeking and degree of psychosocial assets may mediate the effects of life stress. It is likely that, in addition to those mentioned above, there are other individual

difference variables which probably moderate the effects of life stress. Research designed to determine the nature of these variables is needed.

While an emphasis on moderator variables is in order, research with the Life Experiences Survey to date seems to support its usefulness in life stress research. The format of the scale which allows for the individualized rating of the impact of events and the separate assessment of positive and negative change makes it especially appropriate for future research in the study of how people deal with the stresses and strains of modern life.

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