IDENTIFICATION OF HEALTH RISK FACTORS AMONG UNDERGRADUATE UNIVERSITY STUDENTS

Anna Gupta . Sharon McMahon . Gurpal Sandhu *

The tensions and anxieties which university students experience and their unhealthy mechanisms for coping with them have come to the attention of the nursing faculty at the University of Windsor.

There exist on campus the usual student services, including Dean of Students, Medical Officer, University Chaplins, and Psychological Centre where students may go for assistance with their problems. Other programmes such as the recreational and exercise activities at the Faculty of Human Kinetics, stress and health hazard appraisals at the School of Nursing, and occasional alcohol and drug abuse forums are also available.

The nature of these services is disjointed and independent. No collaborative and coordinated interdisciplinary holistic type of programme is available on a regular basis. Students continue to express worry and dissatisfaction over their stress and maladaptive behaviours, and the researchers took heed of the expressed concerns and needs. With a desire to examine these student health related problems, a three-pronged descriptive survey was launched. It is anticipated that factual data would facilitate the development, streamlining, and coordination of ongoing services to meet students' health wellness related needs.

The 1970s brought a new perspective, known as "prospective medicine", to the process of promoting health and wellness. Harold Leppink (1982) writes that prospective medicine involves detecting precursors and operative risk factors in the patient's life, and attempts to reduce these risks by some type of intervention that has behavioural change as the expected outcome. He defines the steps in prospective preventive medicine as (1) screening for risk factors: agents of disease or precursors, rather than symptoms and signs of overt disease; (2) quantification and appraisal of the degree of risk; (3) systematic risk reduction planning; (4) risk-specific health education aimed at permanent behavioural change; and (5) societal support to sustain change (p.42).

Anna Gupta, R.N., M.Sc.N., is professor and Sharon McMahon, R.N., M.Ed., is assistant professor, School of Nursing, University of Windsor, ON. Gurpal Sandhu, R.N., M.Sc.N., was (formerly) assistant professor of nursing of the University of Windsor.

* This research was done with a grant from the President's Researach Fund, received in March 1982.

This concept led the researchers to decide that, as a first phase in meeting the needs of the students, steps one and two would be undertaken with undergraduate students of the University of Windsor. With input from faculty and student representatives, a further decision to conduct a holistic study through a three stage approach was also made.

Stage 1 of the research concerns an assessment of the type and magnitude of stressful life events (SLES) experienced during the previous year (April 1981 to March 1982), by a sample of the University of Windsor undergraduate students. Stage 2 deals with identification of the health risks for individual students for 12 specific diseases that are identified as the 12 highest causes of morality by disease in Canada. Students who attended the Health Hazard Appraisal (HHA) clinics on campus in the 1980-82 period constitute the sample for this study. Stage 3 is a pilot project to develop a tool for appraisal of the general lifestyle and health related behaviours of individual students.

The following study deals exclusively with Stage 1. Subsequent reports will examine Stages 2 and 3.

Assessment of Stress

We sought to answer two questions: what are the magnitude and types of SLE experienced by students? and, are there differences in the magnitude of stress, experienced by students, that are related to demography and/or programme.

For most university students, the experiencing of developmental crises has come to be associated with transition from secondary schools to higher educational institutions. Greenberg (1981) speaks of sudden changes of support groups, friends, and residence; and of unfamiliar educational resources, increased financial responsibilities, and career preparatory activities as some of the stressors that the commencement of university life brings. Guntur, (1969) identifies anxiety, nervousness, depression, and restlessness as being present in the majority of his sample of 120 sophomore students. Together, Greenberg and Guntur also noted that these students contracted more illness and disease than those with less stress.

This study uses Hans Selye's (1974) definition of stress, as the "non specific response of the body to any demand made upon it". This demand requires adaptation to a stressor irrespective of what that stressor may be.

Levi (1972) reports numerous replications and applications of Selye's original research in the adrenal and cerebral responses of rats to specific stressors; i.e. adrenomedullary hyperplasia increases hormonal release that promotes lipolysis (fat breakdown) and the energy preparatory stages that are needed to ensure alert alarm

and survival of the "threatened" individual.

Wilmore et al. (1980) write that in situations of overwhelming stress such as sleep deprivation, the major bodily response could progress from general alarm alertness to total vascular collapse. To counteract the overwhelming physical response, the body responds with hormonal and neural changes designed to re-establish homeostasis. These fluctuations from a balanced state can be measured by blood pressure and by monitoring nutrient, antigen, and other hormonal release into the blood stream (p.266).

Selye (1976) emphasizes that the presence of "adaptive energy is finite." When on the wane, the body and mind become increasingly susceptible to external stressors, and more prone to physical and mental exhaustion or illness. Ambiguous and unidentified sources of stress prolong maladaptation and alertness. If new stressors are added to uncertain states, the individual requires longer time to restore a "normal" healthy baseline of function and response. Maladaptation to stress is currently believed to be linked to many cardiovascular, endocrine, gastrointestinal, rheumatic, allergic, and mental disorders (Pelletier, 1977; Selye in Levi, 1972; Selye, 1976, 1974; Walker, 1979).

Howard (1978) states that in addition to physical, social, psychological, and emotional responses, cognition could also be upset by stressors of noxious types, duration, and scope. Cognitive functioning is increasingly impaired in efficiency, speed, and complexity, as stressors become uncomfortable.

Rahe, Holmes, Kjaer, Meyer, and Smith (in Dohrenwend & Dohrenwend, 1974) say that a cluster of social events that require change in on-going life adjustment is significantly associated with the time of illness onset (p.47).

While there is a considerable amount of literature available on stress-related research with various populations, there is hardly anything available on Canadian university students. Thus, there exists a great need for such research.

Method

Instrument

Development of the Social Readjustment Rating Scale (SRRS), as a self-administered questionnaire for assessing the magnitude and types of SLE, was founded on the work of Meyer, Holmes, and on Holmes and Rahe's Life Charts (Dohrenwend & Dohrenwend, 1974). Holmes (1980) says that the salience of events was established by using a method derived from psychophysics that generates a ratio scale. The scale has been validated by cross-cultural studies that indicate a universal consensus about the rank order and relative magnitude of the amount of readjustment required by each life

event. The scale provides a quantitative measure for the risk of onset of both serious and minor disease, in relation to events in the patient's life (p.351-52).

Holmes and Rahe's (Dohrenwend & Dohrenwend, 1974) research and replicated studies show that a total value of 300 or more life change units (LCU), during a two year period, create prime high risk conditions for high frequencies of major illness. Scores of 200-299 show medium risk, 150-199 indicate low risk, and those under 150 have more healthy profiles. They also found that a one to two-year life change base predicts the onset of serious disease for the next two years, and that a six-month base predicts the onset of moderately serious disease for the next six months (Holmes 1980; Stone, 1982; Walker, 1979).

Kanner, Coyne, Schaefer and Lazarus (1981) point out that the dominance of the SLE reporting approach to stress assessment arises from the difficulty in studying stress perception, personification, and expression in more sophisticated and complex ways. Ethical and practical constraints prevented intrusive procedures with participants. The self-report is a significant, safe, ethical instrument. Kanner et al. (1981) assert that "hassels" and "uplifts", which are day to day events that ultimately accumulate, should also be assessed. This and other emerging viewpoints about stress and its assessment may have implications for future studies. At this time, the researchers of the current study chose to use Holmes and Rahe's SRRS with minor modifications that seem appropriate for a university student population.

The modified tool is named Student Academic Readjustment Rating Scale (SARRS) (1). The changes made are as follows. A few of the life events have been partially or wholly rephrased with items more applicable to a large majority of university students; and seven questions relevant to life events of students have been added at the end of the stressful life events.

Subjects and Selection

Approximately one seventh of the target population of 7,000 students was randomly selected from a computer-generated list of registrants, resulting in a total of 969 names as sample subjects. The computer listing, though continuous numerically, was grouped under the various academic programmes offered at the university. This ensured a proportionate distribution of subjects from each of the programmes. It also may mean that there is no representation from some of the programmes that have smaller classes; those with less than 10 registrants. Demographic characteristics of the sample are described in Table 1.

Table 1
Demographic Variables

Gender: M = 43.96% (n 426)
F = 56.03% (n 543) = n 969

Age:

Years	(%)
Under 18	= 3.92
19-22	= 62.54
23-27	= 22.39
28-33	= 6.19
34-39	= 2.37
40-50	= 1.96
51+	= 0.62
	100%

Marital Status	(%)
Single	= 81.82
Married	= 10.32
Divorced	= 0.49
Common Law	= 1.60
To be Married	= 4.55
To be Divorced	= 1.23
	100%

Years of Study at University (%)
1st year = 51.91
2nd year = 14.45
3rd year = 16.41
4th year = 16.10
5th year = 1.14
100%

Professional Work Experience Years	(%)
0	70.02
1-2	12.78
3-5	10.57
6-9	2.21
10-15	2.83
16+	1.60
	100%

Procedure

Each SAARS score sheet provided blank spaces for filling in subject's age, sex, and programme of study. It was also headed with a statement about voluntary participation and maintenance of confidentiality of the participant. A brief instruction about how to answer the questionnaire and space for the participant's signature were also included.

The necessary approval of the Campus Research Ethics Committee, heads of department, and professors concerned were obtained for administration of the SARRS during the 10 minutes interval between classes.

The questionnaires were labelled for name, programme, year of study, and telephone number as obtained from the registration list. The forms were assembled into common faculty and common programme categories.

It was hoped that the subjects could be contacted personally through class visits by the researchers. However, after attending five different classes, and having great difficulty locating the subejcts who were named specifically, the researchers met to discuss the problem of logistics. Because of student absenteeism, transfer, drop-out, or illness, it seemed impossible to trace an adequate number of the selected sample. Therefore, a compromise was decided upon. Names were deleted from the questionnaires and the researchers continued to appear in classrooms 10 minutes before sessions started. They requested those students who were early arrivers to be the sample subjects. The proportionate number of subjects to be selected from various programmes was maintained by taking subjects on a "first come first serve" basis from each class. The short preamble of purpose, instructions, and so forth was read out; added explanations were given as needed at the

start. The students complied with the requests very eagerly. It took five to seven minutes for each group to complete the forms; most often the procedure was over before the arrival of the professors.

During the process of administering the SARRS, it was discovered that 155 of the 969 students had completed the forms already as part of their HHA clinic services. Therefore, they did not complete a second form. Instead, their forms were pulled out from their HHA files and included in the total sample. These 155 were analyzed separately as well, to make comparisons with the rest of the sample. Because of highly vocal complaints from nursing students about stress, all students in the School of Nursing completed the SARRS for comparison within the school itself, in addition to their representative numbers in the 969 sample.

Results

Using SPSS, cross-tabulations of frequency and percentage were computed. Of the 969 total sample subejcts, 34.9% show a cumulative magnitude of stress of over 300 LCU, indicating prime high risk conditions for high frequencies of major illness (see Table 2). Gender variables indicate 31.7% of the male, and 37.40% of the female subjects are above the 300 limit. The highest percentage (66.7) of students over the 300 limit is in the 51+ year old group, with the lowest (17.4%) being in the 34-39 year old group.

In the year of study categories, half the five years and over group (5+) are over the 300 limit. The next largest over this limit are those in first year (42.7%), and those in second year are the lowest (24.3%).

Table 3 shows high percentages of subjects over the 300 limit. (Of these, the group that has the highest percentage (76.7%) of subjects over the 300 limit is that which reported experiencing a change in academic performance (2).

For a clearer picture of the types of SLE that the students experience, the 43 events in the SARRS have been stratified into 9 categories. Paykel's grouping described in Dohrenwend and Dohrenwend (p.137) was used as a pattern for this stratification (see Table 4).

Results reveal that, overall, there exists a statistically significant positive relationship in the magnitude and types of SLE experienced by subjects for the various variables under study, but for a few exceptions.

TABLE 2

CUMULATIVE MAGNITUDE OF LCU VALUES OF SLE:

Cumulative Magnitude of LCU Values	GENDER			AGE GROUPS							YEAR OF STUDY				
	Male n = 426	Female n = 543	Percentages n = 969	18 + below n = 38	19 - 22 n = 606	23 - 27 n = 217	28 - 33 n = 60	34 - 39 n = 23	45 - 50 n - 19	51 + n = 6	Year 1 n = 504	Year 2 n = 140	Year 3 n = 159	Year 4 n = 156	Year 5 n = 10
0 - 99	17.14	11.42	13.83	5.26	14.03	13.82	6.67	30.42	31.58	16.67	8.33	12.85	22.01	23.72	10.00
100 - 199	28.40	24.68	26.32	18.43	26.40	28.11	26.67	26.09	21.05	16.66	21.63	35.00	30.82	30.13	30.00
200 - 299	22.77	26.51	24.87	39.47	24.42	25.81	23.33	26.09	10.53	0.00	27.58	27.86	18.87	20.51	10.00
Total %	68.31	62.61	65.12	63.16	64.85	67.74	56.67	82.60	63.16	33.33	57.54	75.71	71.70	74.36	50.00
300 - 399	15.73	18.61	17.33	15.79	16.83	18.43	18.33	8.70	26.32	33.33	20.24	7.86	16.35	16.03	40.00
400 - 499	9.15	9.95	9.60	7.89	9.90	9.22	10.00	8.70	5.26	16.67	12.30	9.29	4.40	6.41	10.00
500 - 599	4.00	6.82	5.57	10.53	5.62	3.69	10.00	0.00	5.26	16.67	6.75	5.72	5.66	1.92	0.00
600 - 699	0.93	1.29	1.14	2.63	1.32	0.46	3.33	0.00	0.00	0.00	1.59	0.71	1.26	0.00	0.00
700 - 799	1.18	0.55	0.83	0.00	0.99	0.00	1.67	0.00	0.00	0.00	1.19	0.71	0.63	0.00	0.00
800 - 899	0.23	0.00	0.10	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	0.00
900 - 999	0.47	0.00	0.21	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.39	0.00	0.00	0.00	0.00
1000-1099	0.00	0.18	0.10	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	0.00
Total %	31.69	37.40	34.88	36.84	35.15	32.26	43.33	17.40	36.84	66.67	42.46	24.29	28.30	25.64	50.00

TABLE 3

CUMULATIVE MAGNITUDE OF LCU OF SLE

		QUESTIONS 44 - 48									WORK EXPERIENCE (2149)						MARITAL STATUS (2150)					
Cumulative LCU Values	Change in Academic Performance (K16) n = 437	Job Hunting - Yes n = 377	Job Hunting - No n = 437	Marriage Plan-Yes n = 193	Marriage Plan-No n=621	Change in Residence-Yes n = 301	Change in Residence-No n = 513	Visa Student - Yes n = 101	Visa Student - No n = 713	Physical Discomfort Yes n = 294	Physical Discomfort No n = 520	None n = 570	1 - 2 Years n = 104	3 - 5 Years n = 86	6 - 9 Years n = 18	10 - 15 Years n = 23	16 + n = 13	Single n = 666	Married n = 84	Divorced n = 4	Common Law n = 13	To Be Married n = 37	To Be Divorced n = 10
0-199	4.12	11.97	14.65	11.40	14.00	9.97	15.40	9.90	13.88	7.14	16.93	15.96	5.78	9.30	0.00	4.35	23.08	12.61	22.62	0.00	15.39	16.22	0.00
200-299	19.22	25.00	28.38	23.83	27.70	21.93	29.63	21.78	27.49	23.47	28.65	26.84	22.11	26.74	38.89	30.43	38.46	25.68	23.81	25.00	15.38	29.73	50.00
Percent	23.34	36.97	43.02	35.23	41.70	31.90	45.03	31.68	41.37	30.61	45.58	42.80	27.89	36.04	38.89	34.78	61.54	38.29	46.43	25.00	30.77	45.95	50.00
300-399	24.71	28.19	23.80	19.17	28.02	29.24	23.98	29.70	25.39	24.15	26.92	24.39	25.00	36.05	33.33	34.78	15.38	26.58	25.00	0.00	15.38	27.03	30.00
400-499	21.74	15.96	17.62	22.28	15.14	18.27	15.98	14.85	17.11	19.05	15.58	16.84	25.00	12.79	5.56	8.70	7.69	16.82	19.05	50.00	15.38	18.92	0.00
500-599	16.70	10.64	7.78	14.51	7.41	10.30	8.38	12.97	8.56	12.93	6.92	8.42	8.65	11.63	11.11	13.04	15.38	10.21	3.57	0.00	23.69	2.70	0.00
600-699	8.69	6.38	4.81	5.70	5.48	7.30	4.48	5.94	5.47	9.52	3.27	4.91	10.58	3.49	5.56	8.70	0.00	5.11	5.95	25.00	15.38	5.41	20.00
700-799	2.29	1.06	1.37	2.59	0.81	1.66	0.98	1.98	1.12	2.38	0.58	1.23	1.92	0.00	5.56	0.00	0.00	1.50	0.00	0.00	0.00	0.00	0.00
800-899	1.83	0.53	1.14	0.52	0.96	1.00	0.79	2.98	0.56	1.02	0.77	1.05	0.96	0.00	0.00	0.00	0.00	1.05	0.00	0.00	0.00	0.00	0.00
900-999	0.23	0.00	0.23	0.00	0.16	0.00	0.19	0.00	0.14	0.00	0.19	0.18	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00
1000-1099	0.46	0.27	0.23	0.00	0.32	0.33	0.19	0.00	0.28	0.34	0.19	0.18	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00
Percent	76.66	63.03	56.98	64.77	58.30	68.10	54.97	68.42	58.63	69.39	54.52	57.20	72.11	63.96	61.11	65.22	38.46	61.71	53.57	75.00	69.23	54.05	50.00

NOTE: Total n = 814 (Qjs 44 - 5- have not been given to the clinic population).

Table 4

SLE Compared Between the Given Variables

Variable	Mean	STD	Median	r_s
Gender				
Male	19.24	11.15	18.31	M & F = 0.90 *
Female	22.46	15.11	21.80	
Year of Study				Years
1.	24.41	16.23	22.16	1 & 2 = 0.83 *
2.	19.70	13.40	18.71	1 & 3 = 0.83 *
3.	19.66	12.49	18.35	1 & 4 = 0.75 *
4.	16.68	9.81	15.72	2 & 3 = 0.91 *
				3 & 4 = 0.92 *
Clinic vs. Non Clinic				
Non clinic	21.55	13.56	20.39	Ncl & Cl = 0.94 *
Clinic	22.27	14.69	19.35	
Visa vs. Non Visa				
Visa	23.34	15.83	23.76	V & NV = 0.89 *
Non Visa	20.98	13.11	20.89	

* P > $|r_s|$ 0.0001 for each variable

Table 5

SLE Compared Intra & Inter Faculty and School Basis

Faculty	Mean	STD	Median	r_s
Social Science				Years
Year 1	20.97	13.51	19.82	1 & 2 = 0.62 *
2	22.79	23.56	20.00	2 & 3 = 0.59 *
3	12.00	7.45	10.71	1 & 4 = 0.64 *
4	16.55	11.99	17.65	3 & 4 = 0.56 *
				1 & 3 = 0.76 *
Arts				
Year 1	18.38	12.81	17.28	1 & 3 = 0.80 *
3	20.64	13.05	20.83	
Math & Science				
Year 1	21.09	16.34	18.06	1 & 2 = 0.84 *
2	17.66	11.41	18.75	2 & 3 = 0.67 *
3	15.18	12.31	14.71	1 & 3 = 0.81 *
4	16.60	11.17	17.27	3 & 4 = 0.78 *
				1 & 4 = 0.66 *
Non Dept. Faculty				
Year 1	22.74	14.42	22.07	1 & 2 = 0.33 ***
2	6.83	5.87	6.25	1 & 3 = 0.42 **
3	10.93	11.92	10.00	1 & 4 = 0.64 *
4	11.96	7.59	10.84	2 & 3 = 0.49 **
				3 & 4 = 0.50 **
Schools				
Year 1	19.69	13.99	17.82	1 & 2 = 0.69 *
2	15.02	11.48	14.49	1 & 3 = 0.66 *
3	14.11	12.62	11.90	1 & 4 = 0.62 *
4	21.86	14.86	21.21	2 & 3 = 0.78 *

Inter Faculty Comparison		
Social Science	vs. Arts	0.93 *
	vs. Math & Science	0.94 *
	vs. Non Departmental Faculties	0.89 *
Arts	vs. Math & Science	0.93 *
	vs. Non Departmental Faculties	0.88 *
Math & Science	vs. Non Departmental Faculties	0.83 *
	vs. Schools	0.89 *
Non Departmentalized Faculties	vs. Schools	0.84 *
Social Science	vs. Schools	0.90 *

* P > $|r_s|$ 0.0001

** P > $|r_s|$ 0.0008

*** P > $|r_s|$ 0.0299

The Non-departmentalized Faculties (3) in Table 5 show the lowest positive r_s, ranging from 0.33 to 0.50. This low figure indicates that there is considerable difference in stress that is experienced by students in the various years of these faculties, except for the first and fourth years where the relationship is greater.

In Nursing Plan I, a correlation coefficient of 0.49 between Year 1 and Year 4 suggests that there is some difference in the stress experienced by students in these two years. Also, an r_s of 0.49 between Year 4 of Plan I and Year 3 of Plan II (both seniors) indicates some difference in the stress that is experienced by these two groups.

With regard to the types of SLE experienced by the subjects, Figure 1 demonstrates that students who reported a "change in academic performance" are most prevalent in the "Education" category. Visa students stand highest in the "Lifestyle" category. Female students show a slight increase over males in education and lifestyle, which may account for the slight increase in their cumulative magnitude of LCU as compared to that of male students.

Among the age groups (Table 7), those under 18 years old are the highest in education category. Most of these students are in their first year, with a very few in preliminary and second years of study. The 28 to 33 year age group is the highest in lifestyle events, whereas the 34 to 39 year old group is the highest in employment related events. The latter two groups are composed of students who have returned to school because of job loss, for specific career related education (such as the Law students), or for continued education as in the case of some post R.N. nursing students. The 40 to 50 year old students are the highest in health and lowest in education categories. The 50+ year old group is the highest in loss and lowest in financial and family categories. These 6 subjects are probably the retired, senior age students.

Across the marital status variable (Table 8), single students have the highest percentages in education and in loss, with lowest in lifestyle categories. This group constitutes the bulk (80%) of the sample, and very likely, education being their main concern, the subjects face pass-failure and competitive "mark" related anxieties and tensions. The married group is the highest in the health category. Divorced students are the highest in family, employment, and financial areas, whereas the to-be-divorced group is the highest in legal and social categories. The common-law group is the highest in lifestyle events.

Table 6
SLE Compared Within and Between Nursing Programmes and Years of Plan I and Plan II

Variable	Mean	STD	Median	r_{-s}
Plan I				Years
Year 1	21.54	16.60	19.67	1 & 2 = 0.67 *
2	19.45	16.01	18.18	1 & 3 = 0.64 *
3	15.92	13.95	13.64	1 & 4 = 0.49 **
				2 & 3 = 0.74 *
				3 & 4 = 0.56 *
Totals	19.10	13.33	17.07	
Plan II				
Year 1	20.01	19.70	14.29	1 & 2 = 0.70 *
2	17.47	19.99	11.76	1 & 3 = 0.53 *
3	19.19	17.69	8.33	2 & 3 = 0.82 *
Totals	18.85	17.18	12.94	

Plan I & II	(Total students in each plan)	
Years 1 & 2		0.78 *
2 & 2		0.76 *
3 & 3		0.59 *
2 & 3		0.72 *
4 & 3		0.63 *
		0.49 ***

* P > $|r_{-s}|$ 0.0001

** P > $|r_{-s}|$ 0.0009

*** P > $|r_{-s}|$ 0.0010

Note: Plan I is the generic B.Sc.N. and PLan II is the post RN B.Sc.N. programme.

FIG. 1 CATEGORIZED TYPES OF SLE FOR VARIABLES AS PER LEGEND

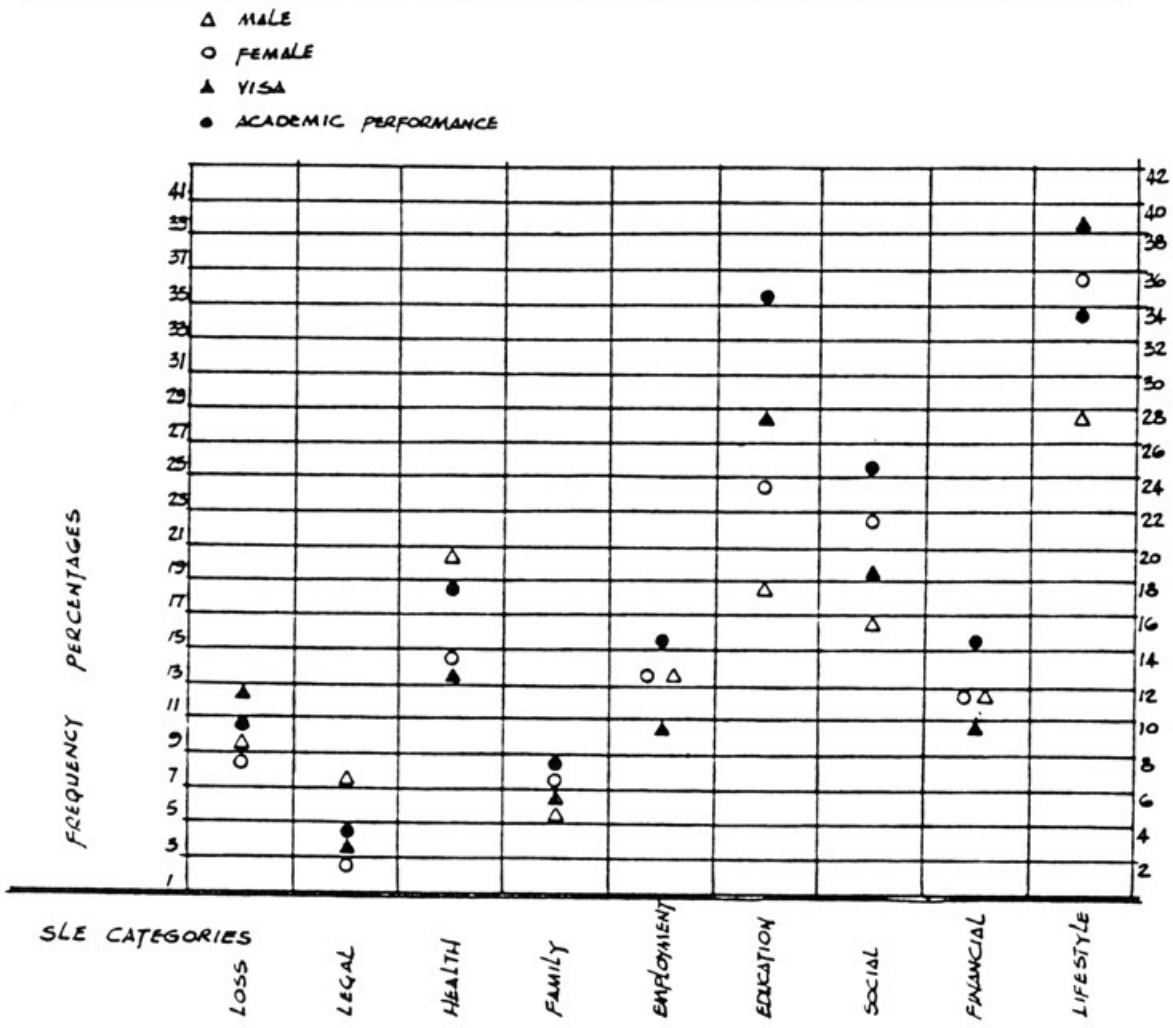

Table 7

Frequency Percentages of Categorized Types of SLE Across the Age Variable

Category	Age Under 18	19-22	23-27	28-33	34-39	40-50	50+
	n = 38	606	217	60	23	19	6
1 Loss	4.95	4.27	4.65	2.44	4.97	5.52	7.59
2 Legal	1.56	1.47	1.84	1.53	1.86	2.07	1.51
3 Health	6.67	5.90	6.11	5.80	4.35	6.90	6.03
4 Family	5.99	8.06	6.22	3.97	0.62	7.59	3.02
5 Employment	3.65	5.31	1.79	5.80	9.31	8.97	3.02
6 Education	29.95	24.21	24.96	22.59	22.98	19.31	27.15
7 Social	15.37	16.65	16.92	16.03	18.01	15.17	15.53
8 Financial	4.69	6.00	5.80	5.04	3.73	5.52	3.02
9 Life Style	27.16	27.63	31.71	36.79	34.16	28.97	33.18
	100%	100%	100%	100%	100%	100%	100%

Table 8

Frequency Percentages of Categorized Types of SLE Across Marital Status Variable

Category	Single	Married	Divorced	Common Law	To Be Married	To Be Divorced
	n = 666	84	4	13	37	10
1 Loss	4.31	3.98	0.00	0.68	3.60	2.12
2 Legal	1.52	2.06	0.00	4.10	0.98	4.24
3 Health	5.52	6.73	4.00	5.47	6.22	3.19
4 Family	6.87	4.67	8.00	3.43	6.88	7.44
5 Employment	5.00	6.31	10.00	4.79	7.86	8.51
6 Education	27.25	23.70	18.00	22.60	22.29	18.08
7 Social	14.67	13.59	18.00	13.01	13.44	18.08
8 Financial	5.33	3.98	8.00	6.84	6.88	3.19
9 Life Style	29.50	35.57	34.00	39.04	31.80	35.10
	100%	100%	100%	100%	100%	100%

Discussion and Conclusion

The findings of the study support students' perceptions that university life presents numerous stressors, which cause undue tensions and anxieties for a vast majority of the student population. It should be of grave concern to all who are interested in students' health and wellness, that more than one third of the student population is at prime high risk, and that more than two-thirds of the student body is at moderate risk for high frequencies of major illness. Also, a large number of students within the various subgroups under study, such as those responding to "change in academic performance", visa students, and first year students, in general, indicate high vulnerability.

It is particularly evident that overall, education and lifestyle categories of events show the highest peaks for most variables.

Lansing Lamont (1979) reports, in his observation of many prestigious universities in the U.S.A., that many students are unhappy, beset with tension, trapped in insecurity and frustration (p.2). University students are subjected to economic, racial, environmental, sexual and academic pressures. Competition for grades, and dread of failure lead to increased suicides, vandalism, abusive drinking, cheating, and sabotage. Although these problems exist in Canadian universities, the researchers are not aware of any studies done in this area.

As Jane and Harry Chapman caution, "The need to 'listen' for early complaints of students; the need for particular attention to be given to those who seek assistance after experiencing stressful life events; the need for an interpersonal process of great depth that allows advocates to get close to, understand, and humanistically relate to students; are all too vital to be ignored or haphazardly dealt with" (1975, p.118).

Recommendations

1. A "stress-awareness" programme should be included as part of the yearly student orientation activities of the university. The focus of the programme should be to foster an understanding of stress and its impact on university student life, positive coping mechanisms, and effective use of resources.

2. Students should be encouraged to use The Student Academic Readjustment Rating Scale to monitor periodically their Life Contentment Unit values and to seek assistance as needed.

3. An immediate follow-up survey should be conducted to appraise incidents of illness among the first year sample subjects of the present study.

4. A longitudinal quasi-experimental study should be carried out to evaluate effectiveness of a "stress-awareness-management" programme.

5. A credit course on "Stress of Life" should be offered as an elective, open to meet the option requirements of any undergraduate programme in the university.

6. This research should be replicated in other universities for comparative purposes.

The above recommendations may be carried out as collaborative endeavours of Nursing, Psychology, or other concerned departments.

A final and overall summary of conclusions and recommendations will be made after presenting the reports of the second and third stages of the project.

NOTES

1. The modified SARRS has been done with input from students and faculty, and with the special assistance of Tom Carney of the Department of Communication Studies, University of Windsor.

2. Whether the change in academic performance was for better or worse is not specified.

3. Non-departmentalized Faculties include the Faculties of Engineering, Human Kinetics, and Law. Although the Faculty of Education is also non-departmentalized, their programmes are considered graduate programmes and hence are not included in the study.

REFERENCES

Chapman, H.H., & Chapman, J.E. (1975). **Behavior and health care.** St. Louis: Mosby.

Dohrenwend, B.S. & Dohrenwend, B.P. (Eds.). (1974). **Stressful life events: Their nature and effects.** Toronto: John Wiley.

Greenberg, J.S. (1971, July-August). A study of stressors in the college student population. **Health Education,** 8-12.

Guntur, L.M. (1969). The developing nursing student. Part III, a study of self-appraisals and concerns. **Nursing Research, 18,** 237-243.

Holmes, T.H. (1980). The new etiology. In A.C. Hastings, J. Fadiman, and J.S. Gordon (Eds.), **Health for the whole person.** Boulder: Westview Press.

Howard, L.R.C. (1978). Pilot beware. **Nursing Mirror, 146**(22), 13-15.

Kanner, A.D., Coyne, J.C., Schaefer, C., and Lazarus, R.S. (1981). Comparisons of two models of stress management; daily hassels and uplifts versus major life events. **Journal of Behavioral Medicine,** 4(1), 1-39.

Lamont, L. (1979). **Campus shock.** New York: Dutton.

Leppink, H. (1982). Health risk estimation. In M.M. Faber, and A.M. Reinhart (Eds.), **Promoting health through risk reductions.** New York: MacMillan.

Levi, L. (Ed.). (1972). **Stress and distress response to psychological stimuli.** Oxford: Pergamon.

Pelletier, K. (1977). **Mind as healer, mind as slayer: A wholistic approach to preventing stress disorders.** San Francisco: Seymour Lawrence Delcorte Press.

Selye, H. (1974). **Stress without distress.** Philadelphia: Lippincotte.

Selye, H. (1976). **The stress of life.** New York: McGraw-Hill.

Stone, A.A. (1982). The objectivity and subjectivity of life events. **Journal of Clinical Psychology, 38**(2), 333-340.

Walker, M. (1979). **Total health.** New York: Everest House.

RÉSUMÉ

Identification des facteurs de risque de maladie chez les étudiants de premier cycle universitaire

L'importance et les types d'événements stressants de la vie (SLE) de 969 étudiants de premier cycle choisis au hasard ont été évalués dans la première phase d'une étude en trois volets sur l'identification des facteurs de risque médicaux chez les étudiants d'université. Une version modifiée du questionnaire SLE de Rahe a été utilisée pour évaluer le stress. Les observations confirment la perception des étudiants qui trouvent que la vie universitaire est très stressante. Les résultats ont démontré que plus de deux tiers de la population de l'échantillon présentait un risque modéré et que plus d'un tiers des étudiants consultés présentaient un risque élevé de maladies graves. Par ailleurs, on a établi des corrélations hautement significatives lorsqu'on a procédé à des comparaisons des stress ressentis par les étudiants des différentes facultés, écoles ainsi que des différentes variables démographiques. Toutefois, de plus grandes différences ont été constatées entre les étudiants des différentes années d'études au sein des facultés sans département et notamment de la faculté de génie, de cinétique humaine et de droit. Dans l'ensemble, les catégories d'enseignement et de modes de vie des événements stressants ont été associées au plus fort pourcentage de fréquence pour la plupart des variables même si certains sous-groupes ont démontré que d'autres catégories, tels que l'emploi, les aspects judiciaires, pécuniaires, sociaux, médicaux et familiaux ainsi que le sentiment de perte suscitaient les stress les plus marqués.

POSTER SESSION: CALL FOR ABSTRACTS

The Third Annual Boston University Nursing Science Colloquium, Strategies for Theory Development III, being held in Boston April 3 & 4, 1986, is seeking abstracts for a poster presentation. Abstracts are sought that illustrate or describe working theory development, including but not limited to concept analysis, theoretical formulation, or empirical testing of theory. Deadline for submission is January 15, 1986. For information contact: Nancy Wells, Boston University School of Nursing, 635 Commonwealth Ave., Boston, Ma. 02215.