

# Chronic Pain in College Students

## *Issues of management*

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### SUMMARY

**A survey of university students confirms earlier studies that found chronic pain fairly common among young adults. Students with chronic pain were similar demographically and psychologically to students with pain of less than 3 months' duration, but were much more likely to use analgesics and alcohol and to report that pain interfered with school work. Treatment implications are discussed.**

### RÉSUMÉ

**Une enquête auprès d'étudiants de niveau universitaire confirme les études antérieures où l'on avait identifié un nombre relativement important de jeunes adultes souffrant de douleurs chroniques. Les caractéristiques démographiques et psychologiques de ces derniers étaient semblables à celles des étudiants dont la douleur remontait à moins de trois mois, mais ils étaient beaucoup plus à risque d'être des utilisateurs d'analgésiques et d'alcool et de rapporter que leur douleur interférait avec le travail scolaire. L'article discute des implications thérapeutiques.**

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**F**OR THE PAST SEVERAL YEARS WE have been exploring several aspects of the relationship between age and pain.<sup>1-4</sup> The present study began the process of identifying chronic pain sufferers in a population of university students. The famous Nuprin Report established that pain is relatively common in young adults.<sup>5</sup> Since then our own work with university students has confirmed that finding. Headache, backache, and stomach pain are decidedly more common in the young than the old. In a comparative study, a key finding was that a group of college students reported more pain, both occasional and chronic, than a group of elderly patients.<sup>6</sup>

A recent study of university students showed that head and back pains were frequently family affairs: symptoms were commonly shared by family members, and families with more than one pain sufferer tended to function poorly in general.<sup>7</sup> The high levels of discord did not seem entirely explainable by the pain symptoms. It seemed more likely that, as suggested by a previous study, pain models within the

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family (mainly parents) made college students more likely to develop pain.<sup>8</sup>

However, the epidemiology of pain problems in the younger population is not well researched. In a study of 1254 adults in the continental United States, the Nuprin Report found that 85% of young adults had headaches fairly regularly.<sup>5</sup> Moreover, younger people reported more pain than elderly people in every pain site except joints. The commonness of headaches in the university student population has received some attention. Andrasik and colleagues<sup>9</sup> reported that, of a sample of 1161 students, 20% experienced at least three headaches per week, and virtually all reported occasional headaches. Woods,<sup>10</sup> in a study of 305 university students, found that 35% reported severe or recurrent head pain. In a recent comparative study, 60% of the sample of college students, as compared with 20% of the elderly, had headaches regularly (monthly to daily).<sup>6</sup> The few studies that have been done make it clear that pain is a common problem in the college-age population. But how serious is the problem, and how effectively is it managed?

### METHOD

#### Subjects

We surveyed 201 students enrolled in an introductory psychology course for the

presence of pain. Fifty students reported pain that had lasted more than 3 months. These became the chronic pain group (CPG). A closely matched group was

individual perceptions of pain and illness in family members.

3. The Beck Depression Inventory is a 21-item questionnaire to assess depression that has been extensively used with pain populations. The standard cut-off scores for screening and identifying depressed subjects are 13 and 21, respectively. Test-retest reliability for this instrument ( $r$ ) is .87.<sup>12</sup>
4. The Rosenberg Self-Esteem Scale comprises 10 items scored on a 5-point Likert-type scale. Possible scores range from 10 to 40, and the mean score for university students is 29 (SD = 3.2).<sup>13</sup>
5. The Vando Augmenter-Reducer Scale, a 54-item questionnaire, measures pain tolerance or sensitivity. High scores suggest "reducers": people with high pain tolerance, low hypochondriasis, and high extraversion. Split-half reliability for this instrument is .89, and the test-retest reliability is .74.<sup>14</sup>
6. The Visual Analog Scale is a 10-cm line representing a continuum ranging from no pain to unbearable pain.<sup>15</sup>

**Table 1. Demographic characteristics of study sample\***

VARIABLE	CHRONIC PAIN GROUP (N = 50)	PAIN GROUP (N = 54)
AGE	22.5 years (SD = 6.2)	20.2 years (SD = 1.9)
EDUCATION	12.8 years (SD = 0.8)	12.9 years (SD = 1.1)
<b>SEX</b>		
Male	43.8%	48.1%
Female	56.2%	51.9%
<b>RELIGION</b>		
Protestant	28.9%	24.1%
Catholic	42.2%	29.6%
Other	28.9%	46.3%
<b>LIVING ARRANGEMENTS</b>		
With family	69.6%	59.3%
With friends	17.4%	20.4%
Other	13.0%	20.3%
<b>MARITAL STATUS</b>		
Single	89.6%	100.0%
Married	6.3%	0
Separated or divorced	4.2%	0

\*All comparisons were not significant.

established of 54 students who reported pain of less than 3 months' duration. The students received a course credit for their participation in the project.

#### **Instruments**

All students completed the following questionnaires.

1. The Demographic and Health Questionnaire was developed by the authors and has been used in several past studies.<sup>3,4</sup>
2. Family and Individual Pain Experience and Perceptions is a modified questionnaire originally developed by Prohaska and colleagues<sup>11</sup> to explore

## **RESULTS**

### **Demographics**

The two groups were similar, as could be expected from a freshman class, in their age and sex distribution (*Table 1*). Mean age was 22.5 years for the CPG (SD = 6.2) and 20.0 years for the PG (SD = 1.9). The CPG comprised 23 male subjects (43.8%) and 27 female subjects (56.3%); the PG had 26 male subjects (48.1%) and 28 female subjects (51.9%). As for marital status, in the CPG 89.6% were single, 6.3% married, 2.1% separated, and another 2.1% divorced. All PG subjects were single. Most students (69.6% CPG and 59.3% PG) were living with their parents; 20% in both groups lived with friends. The rest were in a variety of living arrangements. The two groups were almost identical in their educational attainments. No statistically significant demographic differences were found.

### **Pain profile**

**Pain sites.** The CPG reported 2.35 pain sites per subject as opposed to 1.6 sites for the PG. Back, muscle, joint, and head were

the four most common pain sites reported by both groups. Stomach, neck, and chest pains were also reported (Table 2).

**Duration.** By definition, the duration of pain for the PG was 3 months or less. Of the CPG, 60% reported that they had had pain for more than 2 years. Only 12% had had pain for just 3 months.

**Pain intensity.** On the Visual Analog Scale, the CPG reported a mean intensity of 4.7 (SD = 2.04) and the PG a mean intensity of 3.72 (SD = 1.42); these differences were not statistically significant (Table 3). These data were derived from the 54.1% of the CPG and 22% of the PG who said they were feeling pain on the day the test was administered ( $\chi^2 = 21.73$ ,  $df = 1$ ,  $P < .001$ ).

**Pain control and treatment.** Table 3 shows how subjects tried to control pain. Oral analgesics were the most popular means. Among the CPG 89.2% used analgesics; 56% of the PG did so ( $\chi^2 = 27.31$ ,  $df = 1$ ,  $P < .001$ ). Alcohol was used to control pain by 13.5% of the CPG and 4% of the PG. Sixteen percent of the CPG said they had sought medical help for pain during the previous week; only 3.7% of the PG reported doing so ( $\chi^2 = 6.44$ ,  $df = 1$ ,  $P < .025$ ). Helpfulness of treatment for current pain was reported by 32% of CPG and 10% of the PG ( $\chi^2 = 14.59$ ,  $df = 1$ ,  $P < .001$ ). Finally, the subjects were asked whether they had ever attended medical clinics specifically for their pain complaints; 18.9% of the CPG and 8% of the PG had done so ( $\chi^2 = 32.77$ ,  $df = 1$ ,  $P < .001$ ).

**Effect of pain.** This section of the questionnaire primarily assessed the effect of pain on school work. Interference with school work was reported by 43.2% of the CPG and 8.2% of the PG ( $\chi^2 = 32.77$ ,  $df = 1$ ,  $P < .001$ ). There were no significant differences in physical or strenuous activities during the preceding week.

**Psychological profile**

**Beck Depression Inventory.** On this instrument, both groups scored firmly in the non-depressed range (below 21). The

mean scores were 10.86 (SD = 7.3) and 8.2 (SD = 6.9) for the CPG and PG groups, respectively; the differences between the two groups were not significant (Table 4). None of the sample used antidepressant medication.

**Rosenberg Self-Esteem Scale.** On this scale, the CPG scored 29.3 (SD = 5.08) and the PG 32.12 (SD = 5.6) (Table 4). While this difference was statistically significant, scores for both groups indicated healthy self-esteem. Severity

Table 2. Ranking of pain sites in order of occurrence

SITE	N	%
<b>CHRONIC PAIN GROUP (N = 50)</b>		
Back	13	26.0
Muscle	8	16.0
Joint	8	16.0
Head	7	14.0
Stomach	6	12.0
Neck	3	6.0
Chest	2	4.0
Mean no. of pain sites per subject	2.35	
<b>PAIN GROUP (N = 54)</b>		
Muscle	7	13.0
Back	3	5.6
Joint	3	5.6
Head	3	5.6
Neck	3	5.6
Stomach	2	3.7
Chest	2	3.7
Tooth	1	1.9
Mean no. of pain sites per subject	1.6	

and duration of pain did not seem to have much effect on self-esteem.

**Vando Augmenter-Reducer Scale.**

The CPG scored 31.9 (SD = 6.3) and the PG 30.67 (SD = 8.37) (Table 4). The differences were not statistically significant.

Table 3. Pain profile

VARIABLE	CHRONIC PAIN GROUP (N = 50)	PAIN GROUP (N = 54)	STATISTICAL COMPARISON
Visual Analog Scale			1.40 (29 df)*
•N	20	11	
•Mean	4.7 (SD = 2.1)	3.7 (SD = 1.4)	
Had pain on day of testing	54.1%	22.0%	21.73 (1 df) <sup>†</sup>
Use analgesics to control pain	89.2%	56.0%	27.31 (1 df) <sup>†</sup>
Use alcohol to control pain	13.5%	4.0%	3.91 (1 df) <sup>‡</sup>
Have sought medical help for pain	16.0%	3.7%	6.44 (1 df) <sup>‡</sup>
Have attended a pain clinic	18.9%	8.0%	32.77 (1 df) <sup>§</sup>
Need medication for sleep	18.9%	8.0%	5.18 (1 df) <sup>‡</sup>
Use antidepressants <sup>  </sup>	0	2.0%	--
Pain interferes with university work	43.2%	0.8%	32.77 (1 df) <sup>†</sup>

\*Result of *t* test. <sup>†</sup> $\chi^2$  test: *P* < .001. <sup>‡</sup> $\chi^2$  test: *P* < .05. <sup>§</sup> $\chi^2$  test: *P* < .01. <sup>||</sup>Numbers were too small for statistical comparison.

All the subjects were in the reducer category, which indicated high ego strength, optimism, and a sense of self-control.

## DISCUSSION

The most important finding of this study was the presence of chronic pain in a substantial segment of a first-year university class, confirming the finding of the Nuprin Report.<sup>5</sup> This was not an epidemiological study, and further research would be needed to allow a reliable estimate of the prevalence and incidence of benign chronic pain in the student population. But the implications of our findings demand serious thought.

This study set out to identify students for whom living with chronic pain was a daily reality. A further goal was to develop some understanding of how the pain was treated. The only common treatment was analgesics; a few students resorted to alcohol. Chronic pain was a source of considerable frustration for nearly half the group, as it interfered with their school work. More than two thirds of the CPG expressed dissatisfaction with treatment.

Demographically, these two populations were virtually identical. On pain profiles, however, some significant differences emerged. Members of the CPG do seem to

suffer more and to be more frustrated than members of the PG: they use more analgesics and alcohol, seek medical help more often, and report more severe pain.

It is thus surprising that members of this group have such normal psychological scores, both for mood and for self-esteem. They show no psychological ill effects of their pain, even when it is persistent and fairly severe. In this they differ sharply from patients seen at pain clinics. Their experience seems to be qualitatively different. The students more closely resemble a group we studied a few years ago of elderly people living in the community, who were very active and free of depression despite persistent pain.<sup>2</sup> (The elderly group, however, was very active, whereas a large proportion of the students with chronic pain reported that it interfered with their school work. Unfortunately, we did not investigate the quality or quantity of this interference.)

What protects these students from psychological damage? How do they differ from the pain clinic patients? They were, of course, younger (the mean age of a pain clinic patient is about 43). We can speculate that attending university supports self-esteem and counteracts the toll exacted by pain. Moreover, by definition the students are a functional group, while

Table 4. Psychological profile

MEASURE	CHRONIC PAIN GROUP (N = 50)	PAIN GROUP (N = 54)	RESULT OF T TEST
Beck Depression Inventory	10.9 (SD = 7.3)	8.2 (SD = 6.9)	1.80 (101 df)
Rosenberg Self-Esteem Scale	29.3 (SD = 5.1)	32.1 (SD = 5.6)	-2.64 (101 df)*
Vando Augmenter-Reducer Scale	31.9 (SD = 6.3)	30.7 (SD = 8.4)	.82 (96 df)†

\* $P < .01$ . †Welch-Satterthwaite solution for heterogeneous variances.

many pain clinic patients are faced with some level of disability.

We do not know how these students will fare in the long term: will their psychological well-being suffer in the long run? How many will eventually join the ranks of the pain clinic population? Research is urgently needed so that preventive programs can be developed.

The main complaint of the CPG was persistent, moderate pain refractory to analgesics. Yet they are offered little else. Why are behavioural programs not available to them? In Winnipeg, for example, psychological approaches to pain management are not readily available even in the two main pain clinics.

Relaxation and cognitive therapies are effective for some patients. Drugs have limited efficacy, and long-term use carries risks; relying on drugs alone is a sign of failure to marry the benefits of behavioural medicine with more conventional treatment methods.

University health services, which are accessible to students, are ideally placed to undertake innovative approaches to pain management. Group treatment methods, as reported in the pain literature, could be adapted to meet the specific needs of a student population, which is, on the whole, far more functional than any pain clinic population.<sup>16</sup> Moreover, cognitive approaches may have a special appeal to students; they would be, in a sense, an extension of the educational experience. Surely students would be glad to learn techniques that could enhance their sense of mastery over stress and, above all, over pain.

Our future research will have two focuses: we will work toward proper estimates of the prevalence of chronic pain in young adults; and we will begin to evaluate the effectiveness of behavioural approaches to pain management for this population. ■

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