

# Physician Resistance to the Late Whiplash Syndrome

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**ABSTRACT.** *Objective.* The biopsychosocial model of the late whiplash syndrome is based in part on the concept of symptom expectation — that the commonly held view of whiplash injury as a serious injury and anticipation of chronic pain and disability engenders a post-injury behavior that encourages chronic pain. We sought to determine if an unselected group of physicians (who might be expected to view whiplash as benign compared to most accident victims) would report a more benign outcome to their injuries than a group of nonphysicians.

*Methods.* This survey compares the self-reported outcome of whiplash-type injuries (neck sprain) in physicians and nonphysicians working at a university hospital. Subjects were asked to recall motor vehicle accident experiences, the presence of symptoms as a result, and the outcomes for those symptoms.

*Results.* Seventy-one percent of physicians and 60% of nonphysicians recalled being in a motor vehicle accident. About 31% of physicians recalled acute symptoms, compared to 46% of nonphysicians. Symptoms tended to be short-lived for physicians (days to weeks) while nonphysicians more often had symptoms lasting over 6 months. Only 9% of physicians recalled symptoms lasting for more than one year compared to 32% of nonphysicians. Physicians took no more than one week off work, whereas among nonphysicians, it was common to take more than 6 months off.

*Conclusion.* Physicians appear to be in at least as many motor vehicle accidents as nonphysicians, and 33% suffered the acute whiplash syndrome. Physicians appear, however, to be more resistant than nonphysicians to the progression from acute pain to chronic pain and disability. (J Rheumatol 2001;28:2096–9)

## Key Indexing Terms:

WHIPLASH INJURIES  
PHYSICIANS

NECK SPRAIN

TRAFFIC ACCIDENTS  
OUTCOME

A biopsychosocial model has been proposed to explain much of the variance in the epidemiology of the late whiplash syndrome in various countries<sup>1,2</sup>. This model indicates that symptoms do not solely arise as merely the somatic expression of anxiety or other psychological disorder, but rather that psychosocial factors operate within a whiplash culture (a culture with the frequent occurrence of the late whiplash syndrome, i.e., Canada, the United States, the United Kingdom, Norway, Japan, Switzerland, et cetera) to produce specific behaviors following the acute whiplash injury. It is believed this behavior in turn generates the pattern of symptoms seen in the late whiplash syndrome, with multiple physical and psychological sources for symptoms<sup>1</sup>.

The impetus for this model has been the epidemiological evidence of outcomes for Grade 1 and 2 whiplash associated disorder in Lithuania, Greece, and Germany. The late whiplash syndrome, if it exists at all in these countries, is relatively rare<sup>2-7</sup>. Subsequently, a Canadian study confirmed that litigation can be one of the important factors increasing

both the severity and chronicity of the late whiplash syndrome<sup>8</sup>. We have suggested that symptom expectation and amplification are also of importance. Thus, some accident victims may be at higher risk for the late whiplash syndrome because of their greater anticipation of chronic pain and disability following the accident. This is partly because of a public environment that reinforces this expectation, and therefore promotes both symptom amplification and further behaviors that foster chronic pain.

## MATERIALS AND METHODS

Our study was conducted at the University of Alberta Hospital in Edmonton. The population base consisted of physicians (including general practitioners, family physicians, and medical, surgical and psychiatric specialists) as well as nonphysicians (nurses, unit clerks, paramedical staff including pharmacists, physiotherapists, etc., nonmedical hospital staff including janitors, cooks, security guards, etc, and visitors to the hospital). The physicians were approached in medical areas, e.g., clinics and physician meetings. The other participants were approached in the hospital cafeteria. All participants were 18 years or older. This study was approved by the University of Alberta ethics review committee.

Subjects in these 2 areas were randomly approached and asked to fill out anonymously an instrument composed of 2 categories: (I) Sociodemographic characteristics: age, sex, occupation; and (II) Whiplash questions: (1) Have you ever been involved in a motor vehicle accident (as an occupant of a car, truck, or van)? (2) Did you suffer neck or back sprain, neck or back injury, or whiplash as a result of the accident? (3) For what period of time after the accident did you experience the symptoms you associated with your injury, be they neck pain, headache, back pain, or others? (4) Did you lose any time from work as a result of your injury? If yes, specify duration.

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No individual declined. The data were analyzed using the statistical software package SPSS, with all p values cited calculated using Cramer's V test.

## RESULTS

Our sample consisted of 149 physicians and 207 nonphysicians. Almost half our physician responders were general practitioners and family physicians, and nearly half our nonphysician group was made up of nurses and unit clerks. Males predominated in the physician group, whereas the majority of the nonphysician group was female. The average age of the physician group was 45.5 years, compared to 40.1 years in the nonphysician group (no significant difference).

Of the total sample, 64% of respondents had been involved in a motor vehicle accident: 39% of these suffered acute symptoms of whiplash. Roughly 36% of these people took time off work as a result of these symptoms.

The differences between physicians and nonphysicians are striking. As shown in Figure 1, physicians were more frequently involved in a motor vehicle accident. Yet nonphysicians were more likely to complain of acute symptoms, about 5 times as many having taken time off work. These differences are increasingly all statistically significant.

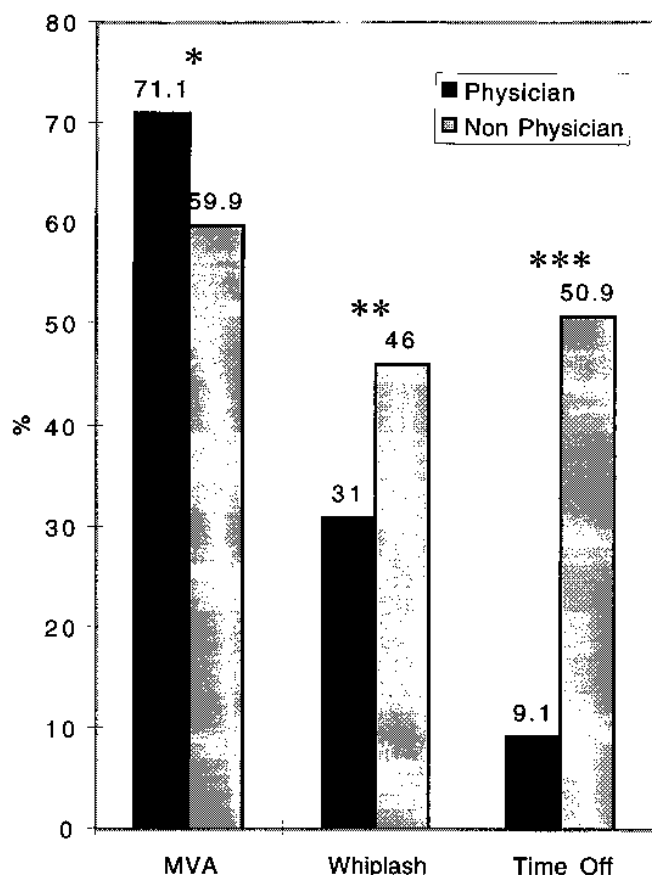


Figure 1. Comparison of physicians and nonphysicians who were involved in motor vehicle accidents, suffered whiplash, and took time off. \* $p = 0.03$ ; \*\* $p = 0.02$ ; \*\*\* $p < 0.001$  Cramer's V test.

Figure 2 reveals that for physicians, whiplash tends to be a short-lived syndrome, with the majority recovering in less than a month. Almost one-half of nonphysicians, on the other hand, had symptoms persisting beyond this time period.

Another interesting finding is illustrated in Figure 3. The 3 physicians in our study population who took time off as a result of whiplash were back to work within a few days. Nonphysicians took anywhere from a few days to over a year off.

These results hold even when one controls for sex (Figure 4), and as stated there was no significant difference in age between the 2 groups. Occupation status is an independent and powerful predictor of outcome.

More general practitioner/family physicians complain of whiplash (43%) than specialists, and it was only these primary care physicians who took any time off work. Among nonphysicians, paramedical staff were most likely to be involved in motor vehicle accidents (70%) and complain of whiplash (64%), but least likely to take time off (11%). Sixty-one percent of nurses and unit clerks were involved in car accidents, but only 37% complained of whiplash. Interestingly, however, this group was the most likely to take time off (64%). These subgroup differences were not statistically significant.

## DISCUSSION

It is assumed in this study that each group (physician and nonphysician) had an equal chance of having one of the 4

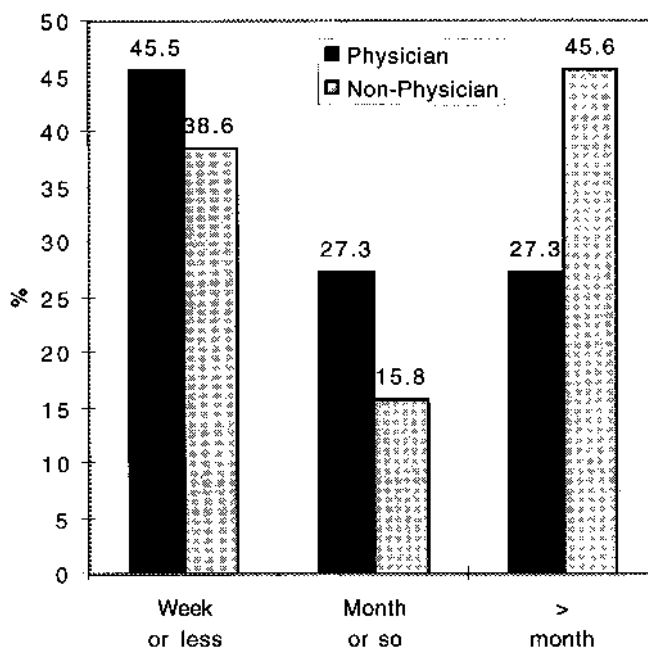


Figure 2. Duration of whiplash symptoms experienced by physicians versus nonphysicians.  $p = 0.0275$  by Cramer's V test for difference in mean duration of symptoms.

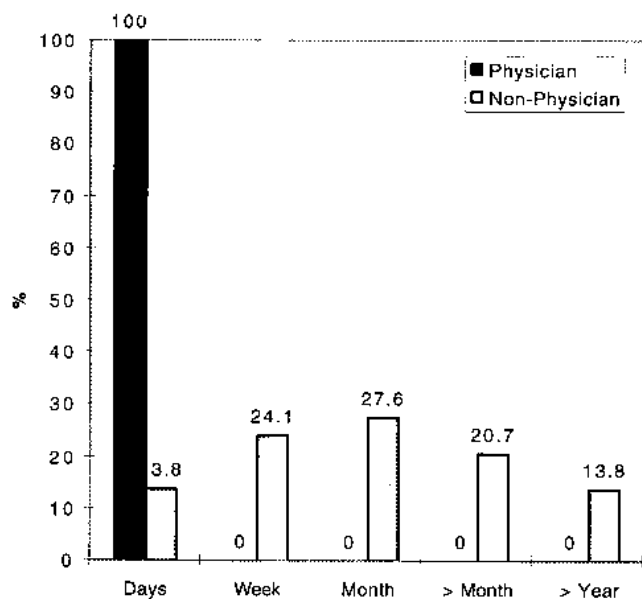


Figure 3. Duration of time taken off by physicians versus nonphysicians.  $p = 0.019$  by Cramer's V test for difference in mean duration of time taken off.

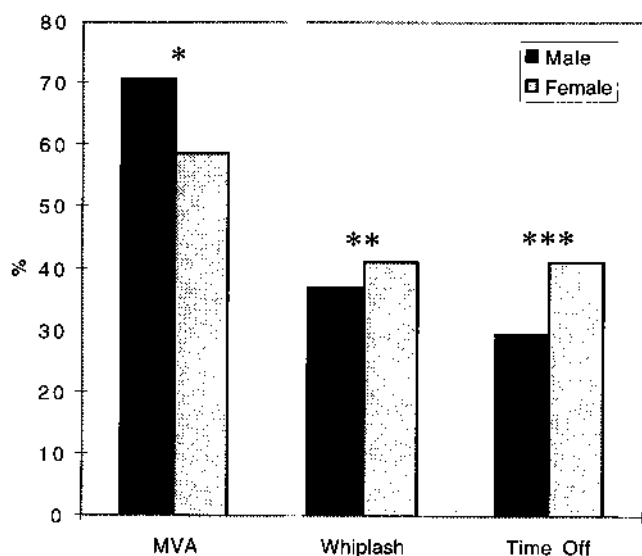


Figure 4. Responders involved in motor vehicle accidents who suffered whiplash and took time off, by sex. \* $p = 0.02$ ; \*\* $p = 0.56$ ; \*\*\* $p = 0.24$ , Cramer's V test.

Quebec Task Force grades of whiplash associated disorders (grades 1 and 2 believed to correspond to "soft tissue injury," while grade 3 involves disc protrusion and neurologic compression, and grade 4 involves fracture and/or dislocation<sup>9</sup>). Some of the injuries in both groups, and indeed some of the chronic outcomes, may have been related to other sites of injury and complications besides whiplash associated disorders, but again we have no reason

to believe that the distribution of such injuries should be strikingly different in these 2 groups. No one has demonstrated that factors such as type of car, use of restraints, et cetera, which could in theory differ among these groups, play any role in the pathogenesis of, or susceptibility to, the late whiplash syndrome<sup>4,7</sup>.

One of the most comprehensive studies of the utility of head restraints was unable to find any advantage to their presence versus absence, even when appropriately used<sup>10</sup>. We have also no reason to believe physicians are involved in less severe accidents, but even this factor would not be highly relevant, as a recent Canadian study showed accident severity has no relationship to outcome following acute whiplash injury<sup>11</sup>. In any case, when physicians are injured they remain relatively resistant to the late whiplash syndrome. This syndrome reflects an enormous range of symptoms that generally increase in severity in the days and weeks following the accident. They may include diffuse neck pain with wide radiation, often pain in other sites, including the low back, fatigue, poor sleep, headaches, dizziness, tinnitus, and more. The Quebec Task Force predicted that the acute symptoms that were directly injury related should settle well within a month, and the recent prospective data from Lithuania, where the late whiplash syndrome appears to be unknown, would support that.

The biopsychosocial model predicts these results. This model is built on the assumption that most whiplash patients are genuine, and have a variety of physical sources for pain, but that a persistent, undiagnosed chronic injury is not one of them. The model also considers phenomena such as symptom expectation, amplification, and attribution. This model has been dealt with in detail<sup>12,13</sup>, and is reviewed in brief here only to provide the underlying hypothesis for our study and a possible explanation for our findings.

In North America, for example, there is overwhelming public information regarding the potential for chronic pain outcomes after whiplash injury, with widespread knowledge of the expected symptoms even among individuals with no personal experience of having an accident<sup>14,15</sup>. This expectation will in turn lead the individual to become hypervigilant for symptoms, to register normal bodily sensations as abnormal, and to react to bodily sensations with affect and cognitions that intensify them and make them more alarming, ominous, and disturbing — symptom amplification<sup>16</sup>. It is noteworthy that, in Lithuania, where the late whiplash syndrome is rare<sup>12</sup>, we have used the methodology of Aubrey, *et al*<sup>14</sup> and Mittenberg, *et al*<sup>15</sup>, and are finding a lack of expectation of chronic symptoms — i.e., the whiplash injury is viewed as benign (Ferrari R, *et al*, in preparation).

The circumstances of the accident immediately create an impression that the minor injury is not benign. The patient's fear, and thus symptom amplification, may start when paramedics take them out of the car in a special stretcher, apply

a hard collar, and warn them not to move. A physician would surely recognize that after a minor accident this is unnecessary. During this study we received many anecdotes of how physicians dismissed the paramedic's offer of a collar as soon as they found they could move their neck without immediate neurologic symptoms.

Symptoms are also more likely to be intensified when they are attributed to a serious cause than to more benign causes such as lack of sleep, lack of exercise, or overwork<sup>17</sup>.

Another aspect of symptom amplification occurs when others have the accident victim repeatedly draw attention to the symptoms (i.e., every time the patient sees a therapist, or is asked to keep a diary of symptoms, et cetera). Attention to a symptom amplifies it, whereas distractions diminish it. Thus the more frequently patients are asked to rate their pain, the more intense they rate it<sup>17</sup>.

This symptom expectation and amplification may cooperate to alter an accident victim's behavior in a detrimental way. Feeling severe pain and fearing future disability, they develop the cognitions and behaviors that lead to withdrawal from activities following minor injury, and, for example, develop maladaptive postures. Yet it is known, for example, that postural abnormalities, if induced in healthy subjects, cause pain<sup>12</sup>. The whiplash patient, in response to their heightened pain and their anxiety, has just created a new source of pain — and a physical source at that. This new source forms a further part of the substrate upon which symptom amplification can act. The patient does not realize that they have a new cause of pain, instead, they feel their damage has progressed — such was their expectation. Psychosocial factors ultimately generate, in this example, a physical source for pain. Many other facets of this behavior have been described, including reasons for the inappropriate attribution of subsequent symptoms<sup>12</sup>.

Physicians are aware of the controversies over whiplash, and are often engaged in educating the accident victim about the structurally benign nature of whiplash related problems. We surmised that physicians would therefore be less likely to be fearful of the whiplash injury as severe. Physicians are generally aware that transient neck or back pain, for example, is quite common in the population, and that a prolonged search for a structural cause in the absence of neurologic signs is not usually helpful. Recent studies have emphasized that the approach to management is reassurance and maintenance of normal activities<sup>18</sup>. Thus, while patients may be more anxious if told there is no obvious anatomical/structural cause, physicians understand this to be reassuring.

Of course, our results may be partly related to personality, financial, and social differences between physicians and nonphysicians. Some of these factors may also be used to explain the differences seen between primary care physicians and specialists. Litigation, insurance systems, and availability of a substitute physician may all influence behavior.

Physicians are notoriously poor in compliance with therapy, and if therapists encourage symptom amplification, the resistance to advice, especially from nonphysicians, may in fact be beneficial. The recent Saskatchewan study<sup>8</sup> suggests those who attend chiropractors, i.e., health care providers oriented towards a mechanical fault as the cause of the problem, have a worse outcome than others.

Whether any or all of these factors were involved cannot be determined without a more detailed and prospective analysis. We believe the data do support the idea that it is factors other than the mechanical injury that are the prime determinants of an adverse outcome<sup>13</sup>.

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