

Structure-oriented beliefs and disability due to back pain

Max Zusman

The modern costly epidemic of disability due to back pain is considered to be effectively the result of various beliefs as to the cause, and therefore appropriate management, of this commonplace, generally benign and self-limiting symptom. Prominent is the belief that spontaneous or provoked pain is evidence of some problem with the structure of the spine. As such, along with therapeutic rest, the logical means of relieving pain would be with interventions which actually or purportedly influence structure. Evidence is discussed endorsing the existence, likely origins, potency, fallacy and dysfunctional consequences of this view in the context of the unique 20th Century phenomenon, chronic disability following non-specific back pain.

[Zusman M: Structure-oriented beliefs and disability due to back pain. *Australian Journal of Physiotherapy* 44: 13-20]

Key words: Attitude to Health; Back Pain; Disability Evaluation; Structure-Activity Relationship

M Zusman DipPhty, BAppSc, GradDipHthSc, MAppSc is a lecturer in the School of Physiotherapy at Curtin University of Technology, Perth.

Correspondence: Max Zusman, School of Physiotherapy, Curtin University of Technology, Selby Street, Shenton Park Western Australia 6008.

During the course of this century there has been an exponential increase in the numbers of individuals in Western societies who are disabled by the symptom (low) back pain (Waddell 1987). As far as can be determined, there has been no corresponding change in the fundamental nature of back pain, or sciatica, itself (Troup 1996, Waddell 1995). Historically, the incidence and prevalence of back pain appear to have been relatively stable (Fordyce 1995). In other words it has been difficult to attribute this modern epidemic to some inexplicable dramatic increase in the generally recognised "specific" diagnoses (Waddell 1992).

Nor have proposals attributing back pain to everyday lifestyle factors been particularly convincing. For instance, in the United States, a number of these lifestyle factors were modified by, among other things, the extensive and expensive introduction of seemingly promising applied ergonomic knowledge and an array of mechanical labour-saving devices (Mooney 1987). However, during the same period, disability due to back pain increased 14 times the population growth (Cats-Baril and Frymoyer 1991). This costly addition to the ranks of the chronically disabled was in excess of that for all other health disorders (Frymoyer and Cats-Baril 1991). During the time that disability awards for all conditions rose an average of 347 per cent, those for back pain soared 2,680 per cent. Similar figures are reported for other Western societies, including Great Britain and Sweden (Cats-Baril and Frymoyer 1991).

The changes considered to be associated with this uniquely 20th Century phenomenon are beliefs as to the basis for back pain, and therefore, the way(s) in which it should be managed (Allan and Waddell 1989), namely that pain is evidence of some injury or otherwise induced structural/biomechanical fault with the spine (Waddell 1992). As such, the treatment of choice would be rest, perhaps some intervention which actually or purportedly altered structure, or both (Loeser and Sullivan 1995, Long 1995, Nachemson 1992, Wardwell 1993). However, rather than being effective, the disabling consequences of this approach have left a legacy of profound personal, social and economic loss (Fordyce 1995, Loeser 1996, Nachemson 1996, Volinn 1996, Waddell 1987). Hence it has been suspected that many of the manifestations of back pain, in particular chronic "intolerance to activity", are a result of factors other than simply underlying pathoanatomy (Fordyce 1995, Loeser 1996).

There is now mounting pressure to halt, and hopefully reverse this "...twentieth-century health care disaster" (Waddell 1995, p. 595). Considerable effort is being expended on endeavouring to uncover those diagnostically "non-specific" factors which could contribute, albeit unintentionally, to growing numbers of individuals becoming crippled by the essentially benign and mostly self-limiting symptom, back pain (Fordyce 1995). Research to date suggests that these non-specific factors fall into

From Page 13

three mutually influential categories: iatrogenic (medical professionals of all types), the system (compensation-legal) and biobehavioural (claimant/patient).

Non-specific components of back pain**Iatrogenesis**

Iatrogenic factors relate mainly to the impairment-disability label and deconditioning consequences of (prolonged) pain-contingent therapeutic rest, together with the need for correction of apparently faulty structure/movement of the spine (Loeser and Sullivan 1995, Vernon 1996, Volinn 1996, Waddell 1995). Therapeutic rest and both invasive and non-invasive correction of structure are largely the result of anatomical and imaging-driven opinions as to an injury/tissue damage and structural/biomechanical basis for back pain (Hadler 1995, Vernon 1996, Waddell 1995). However, this structurally-based view has been challenged for the overwhelming majority (approximately 80 per cent) of cases, which are now labelled non-specific back pain (Fordyce 1995, Hall and Hadler 1995, Loeser 1996). Non-specific back pain has been described as "Back pain complaints occurring without identifiable specific anatomical or neurophysiological causative factors" (Fordyce 1995, p. 3).

Decades of conditioning have bred a convinced and expectant lay public who, abetted by medical professionals of all types (Frymoyer and Cats-Baril 1991), tend to believe that pain is evidence of some potentially correctable structural/biomechanical impairment of the spine (Borkan et al 1995, Cherkin and MacCornack 1989, Cherkin et al 1988, Salmon et al 1996, Zusman 1984). The corollary belief is that, in the presence of such presumed or occasionally actual impairment, normal function is impossible or at best dangerous (Jensen et al 1996, LaCroix et al 1990, Vlaeyen et al 1995, Waddell et al 1993). This sort of reasoning appears to underly the findings of several studies including

Riley et al (1988). These authors demonstrated that patients' incomplete performance of routine examination, and disability assignment, ranges of trunk and leg movements correlated with the belief that pain implied some structural/damage problem with the spine. This correlation was found to be independent of the actual contribution of reported pain (Riley et al 1988).

The system

Conceived and instituted with theoretically humane and responsible motives, the modern-day compensation-disability system is considered to be a major contributor to the current back pain problem (Hadler 1995, Long 1995, Seres 1995). There is a growing opinion that its original purpose of providing sustenance pending the resumption of gainful employment has been distorted with, particularly in the case of back pain, devastating consequences (Hadler 1995, Fordyce 1995, Loeser 1996).

For example, a recent study of 2,000 low back pain patients found that involvement in litigation was the only variable statistically capable of predicting return to work (Long 1995). In contrast with non-litigants, all of whom resumed working, not one of the 400 (20 per cent) litigants in the sample returned to work. This was despite their having achieved seemingly satisfactory improvement in work capacity, and comparable pain relief (Long 1995). Findings such as these prompted Seres (1995, p. 131) to conclude that the back pain problem is "...not in the iatrogenesis of disability, but in the system that creates the problem." Specifically, "Pain and suffering cannot be dealt with rationally in a compensation system based upon the concept that [structural] impairment leads to disability" (Loeser and Sullivan 1995, p. 120). This critical issue has been clarified by Hadler (1995, p. 648) while decrying the use of impairment rating as a basis for disability determination: "It is a fantasy that supports an industry whose efforts are iatrogenic! Anyone who has to prove he or she is disabled cannot get better. In fact, they

can only get more disabled...".

It might be readily understood how individuals compelled to operate within such a system would have additional incentive to embrace iatrogenically reinforced beliefs as to some structural/biomechanical basis for their pain/impairment, and so temporary or permanent intolerance to activity (Fordyce 1995). It is also possible that beliefs of this type pervade the general public and are not simply confined to those individuals required to negotiate the "iatrogenic gauntlet" demanded by the modern compensation-disability-legal systems (Borkan et al 1995, Cherkin and MacCornack 1989, Cherkin et al 1988, Hadler 1995 and 1996, Salmon et al 1996).

Biobehavioural

Many of the factors included in this category are discussed by Feuerstein and Beattie (1995) under the headings: psychological/cognitive-perceptual; behavioural-environmental; and psychophysiological. Tables may also be found in Bigos et al (1991), Frymoyer (1992) and Gatchel et al (1995).

Investigation of biobehavioural factors, compiled from a large number of studies, arose out of acknowledgement of the inability to understand, or treat, back pain in terms of ontogenetic changes, or injury to structure (Fordyce 1995, Hadler 1995, Loeser and Sullivan 1995). To date, diagnostic and therapeutic models based on notions of applied (patho)anatomy and biomechanics have been incapable of explaining either the onset or severity of most back pain (Fordyce 1995, Kraemer 1995, Nachemson 1996, Saal 1995). Perhaps, more importantly, such anatomic interpretations have failed to predict the duration of pain or its (lack of) response to a vast array of conservative and invasive interventions (Bigos and Davis 1996, Fordyce 1995, Hadler 1995, Nachemson 1996, Twomey 1992). In fact, the structure-oriented approach to the cause and management of back pain developed during the course of this century is itself

considered to have contributed significantly to the situation that exists at the present time (Fordyce 1995, Hadler 1995, Loeser and Sullivan 1995).

A basis for biobehavioural factors

The modern epidemic of disability due to back pain is currently seen as largely a behavioural rather than a strictly medical problem (Barsky and Borus 1995, Fordyce 1995, Loeser 1996). As such, the focus has shifted away from pain-contingent wasteful and ineffective passively received interventions and the need for rehabilitation (Bigos and Davis 1996, Spitzer et al 1987, Teasell and Harth 1996). The currently recommended approach is for early active management (eg return to some form of work) along with attempted prevention (Indahl et al 1995). The major thrust with respect to the latter has been to isolate factors which are considered to be predictive of disability and with this, determine those individuals most at risk. The most striking feature of the predictive studies so far has been the relative insignificance of biologic, and dominance of psychosocial influences (eg Burton et al 1995, Gatchel et al 1995, Hazard et al 1996).

Identification of biobehavioural factors is clearly critical. However, it is acknowledged that in a number of instances their underlying basis and precise make-up are still insufficiently understood (Feuerstein and Beattie 1995). The contribution that biobehavioural factors make to the modern epidemic of disability due to back pain probably will necessitate more extensive investigation (Troup 1996). An example would be the factor known as perceived disability (Feuerstein and Beattie 1995, Waddell and Turk 1992). Research has shown that patients' refusal to engage in everyday activities stemmed from the belief that they were physically incapable of doing so (Waddell and Turk 1992). However, this opinion was not supported by relevant structural changes to the spine (Waddell and Turk 1992). The correlation of

perceived disability with (poor) performance, but not necessarily identifiable impairment or even levels of pain, has often been observed (Riley et al 1988, Waddell and Turk 1992, Waddell et al 1993).

It would be advantageous to understand what lay behind such erroneous dysfunctional beliefs (Troup 1996, Turk 1996). The known association of perceived disability with fear of (re)injury (Feuerstein and Beattie 1995, Vlaeyen et al 1995) does suggest the invariable connection between pain and structure (Beattie 1996, Cherkin and MacCornack 1989, Kraemer 1995, Nachemson 1996, Vernon 1996). In other words, the belief that pain, especially when mechanically provoked (eg by movement, posture or pressure), is evidence of some problem with the physical integrity of the spine (Borkan et al 1995, Cherkin et al 1988, Cherkin and MacCornack 1989, Jensen et al 1996, Rose et al 1993, Salmon et al 1996, Vernon 1996, Vlaeyen et al 1995, Zusman 1995). In fact, the presence of pain is not always essential; simply its anticipation is known to be sufficient to prohibit activity (Phillips 1987, Turk 1996, Waddell and Turk 1992).

Fear-avoidance

It is not difficult to appreciate how such structure-oriented beliefs could have detrimental consequences. It might be deemed inefficient (Borkan et al 1995), and also dangerous (Beattie 1996, Jensen et al 1996, McCracken et al 1992, Rose et al 1993, Vlaeyen et al 1995, Waddell et al 1993), to attempt functional activity while harbouring a hypothetical uncorrected structural fault with the spine (Borkan et al 1995, Cherkin and MacCornack 1989, Cherkin et al 1988, Coulehan 1985, McCallum et al 1996, Rose et al 1993, Salmon et al 1996). The perception or anticipation of mechanically provoked pain is not the only stimulus for engaging in these sorts of structure-oriented cognitions (Turk 1996). Aspects of the clinical encounter, including the prescription of therapeutic rest (Volinn 1996), and the

use of imaging techniques diagnostically (Beattie 1996, Cherkin and MacCornack 1989, Cherkin et al 1988) have also been found to be highly influential (Borkan et al 1995, Loeser 1996, Loeser and Sullivan 1995). Moreover, fear-avoidance theory predicts that simply the anticipation of pain is sufficient for the maintenance of protective behaviours such as decreased ranges of joint movement and activity intolerance (Fordyce 1995, Phillips 1987, Turk 1996). Fear-avoidance of everyday work and leisure activities has been clearly linked with beliefs about the presence of faulty structure (Borkan et al 1995, LaCroix et al 1990, Riley et al 1988, Waddell et al 1993) and the likelihood of mechanically produced (re)injury of the spine (Jensen et al 1996, McCracken et al 1992, Vlaeyen et al 1995).

It is tempting to detect the influence of simplistic pain-structure cognitions, and costly disabling clinical impressions (Volinn 1996), on a number of identified biobehavioural factors, as well as on common behavioural responses, associated with back pain. For example, what might actually be involved in the factor "fear of pain" (Feuerstein and Beattie 1995)? It could be simply an aversion to activity-provoked or anticipated pain per se, or perhaps a dread of the iatrogenically conditioned meaning and prognosis often attributed to such pain. The inclusion, and validation, by McCracken et al (1992), of items such as (pain means that) "...I am damaging myself" and "...I might become paralysed or totally disabled" (if I continue) with their instrument for measuring fear of pain, suggests recognition of the latter possibility. According to these authors, fear can function to drive avoidance behaviour which in turn can serve to reduce the distress associated with back pain (McCracken et al 1992), although not necessarily the pain itself (Phillips 1987, Waddell et al 1993). This view was endorsed by positive responses to questionnaire items such as: "When I feel pain I try to stay as still as

From Page 15

possible", "When I sense pain I feel dizzy and faint" and "My thoughts are agitated and keyed up as pain approaches" (McCracken et al 1992). A somewhat similar rationale seems to be applicable to the factor "disease conviction". Here, distress arising out of the belief that pain is evidence of a major physical problem can effectively increase pain perception by reducing pain tolerance (Feuerstein and Beattie 1995). With one widely used instrument for the evaluation of pain (Illness Behaviour Questionnaire), the combination of the factors disease conviction and "somatic focusing" was found to be highly predictive of response to treatment for back pain, including surgery (Pilowsky 1995). Distress and pain perception may be further supplemented by the deconditioning sensory-motor consequences of severely reduced activity (Fordyce 1995, Waddell et al 1993).

Transferred to the workplace, the scenario could be as follows (identified biobehavioural factors *italicised*): Constant complaints and reluctance to carry out obligatory functions and responsibility (*job dissatisfaction*) lead eventually to *loss of support* of supervisor, employer and even fellow workers. Denied or disinterested in *limited employment* and no longer willing to suffer the distress associated with being obliged to go on *damaging oneself*, an obvious and necessary recourse is to seek *compensation*. Contending with the powerful employer group (which is perceived to be basically to *blame* for the permanent "damage") along with its ally the (orthodox) medical-legal-funding organisation, demands the services of a (known to be sympathetic) *lawyer* (factor reference: Frymoyer 1992). Demonstrable impairment-based disability is a virtual guarantee of successful claim outcome (Fordyce 1995, Hadler 1995, Loeser 1996). However, as has been pointed out, once legally overseen, medically executed disability determination that is "...objectively grounded in pathoanatomy" is set in motion, full

recovery is, if not impossible, then at best seriously compromised (Hadler 1995, p. 642).

Structure-oriented beliefs, fear-avoidance and disability

There is now increasing recognition of the critical role that patients' beliefs play in the cause, prognosis and management of back pain (Turk 1996). Indeed Waddell et al (1993, p. 164) are adamant that: "In their final expression it is the patient's beliefs rather than the underlying physical reality which govern behaviour".

The recent report by Jensen et al (1996) provided further confirmation of the common clinical observation that low levels of functioning correlated with beliefs that pain was evidence of structural damage to the spine, and therefore physical disability. Details surrounding such beliefs, as expressed in their own language, were forthcoming from a sample of general practice patients studied by Salmon et al (1996). Patients thought that the origin of back pain was hidden and serious but nonetheless potentially detectable and correctable. The major causes were considered to be structural damage/strain, "something out of place" and the internal build-up of pressure. The stereotype of age-related wearing out, "hardening" and failure to work of musculoskeletal structures also emerged as a perceived basis for pain and the inability to function normally. Items believed to be of help diagnostically and therapeutically included x-rays/tests, consultation with a specialist and surgery. Similar beliefs were expressed by subjects in the study of Borkan et al (1995). Pain was said to be the result of their back "going out". It was believed that this predisposition was because there was "... some [structural] defect ...in my spine". There was also the certain knowledge that surgery would reveal that everything "...is completely rotten in my vertebrae" (Borkan et al 1995, p. 981).

These structure-oriented beliefs were found to have quite specific backgrounds and consequences, involving the cause of pain, attitude to

activity/work, choice of treatment and opinion of providers (Borkan et al 1995, Cherkin and MacCornack 1989). Subjects were resigned to the inevitability of potentially disabling back pain because of convictions of genetic-hereditary predisposition together with the presence of congenital defects of structure. Most were able to nominate the presumed primary pain-producing physical insult, sometimes occurring as far back as childhood. This may have been compounded by some subsequent trauma (eg bump following a slip, jumping from a height, pregnancy, car accident) and by age and work related structural degeneration/wearing out. Together, these and other cognitions had a significant impact on lifestyle. The dominance of (anticipated) pain, ergonomic preoccupation and, despite peer disapproval or self recrimination, the open evasion of certain tasks and responsibilities, were all evident. Expressions of fear of never being able to walk or run again and the "nightmare" quality of the inescapable feeling of disability were not uncommon. Yet subjects' fondest desire (expectation) was to be "better", that is, to be pain free without recurrences or loss of function. Anything short of this resulted in a spiralling pattern of excessive resource utilisation involving pill substitutions, therapy changes and doctor shopping, with their attendant distress and illness behaviour (Borkan et al 1995).

Costly erroneous and dysfunctional structure-oriented beliefs emerged as the only variable to consistently predict return to work in the study by LaCroix et al (1990). Patients entering the study with the belief that back pain was the product of a "disintegrating" spine for example, were far less likely to have resumed working when reassessed one year later. An obvious link would be that between fear of (further) structural damage and the prohibition of functional activity. In this regard, Klenerman et al (1995) observed that the best predictor of failure to recover after one year was a positive score for the authors' fear-avoidance screen obtained at one week and again at two

months following pain onset. Vlaeyen et al (1995) provided support for the proposal that patients tend to believe that pain is evidence of some structural damage or fault with the spine, and that fear of (re)injury underlies their often profound reluctance to engage in everyday activities. The authors stressed the need to specifically probe and, when present, address such outcome-influencing beliefs, since patients may be otherwise indistinguishable in terms of existing organic pathology, pain intensity or nociception (Vlaeyen et al 1995). Turk (1996) likewise advocated the early identification and rectification of patients' idiosyncratic beliefs, and cautioned against viewing all patients with the same medical diagnosis as similar. Szpalski et al (1995) found with their culturally diverse sample that the most powerful influence on illness-related practices (eg bed rest, medication consumption) and resource utilisation (eg professional visit, x-ray) was the expectation that back pain would be a lifelong problem. These behaviours were not necessarily dependent on the actual frequency of pain. The probable structure-oriented basis for this opinion may be found in the authors' proposed model which begins with a beliefs/behaviour instigated radiologic (ie structural) diagnosis and ends with failed back surgery and chronic disability (Szpalski et al 1995 p. 441).

Turk (1996) has discussed consequences of the common misinformed belief that it is dangerous to engage in activity while experiencing pain, and that pain perception is the signal for retreating into temporary or permanent disability. The impact of such beliefs on patients' mood, as well as on behaviour, can have a significant indirect influence on the pain experience itself (Turk 1996). Moreover, according to the operant conditioning model, cognitively instigated perceptions and behaviours may be maintained by reinforcement long after any initial soft tissue damage has healed (Fordyce 1988). Disability increases as a result of the process

known as stimulus generalisation, whereby avoidance expands to include activities that are only suspected of being potentially painful. Knowing, and addressing from the outset, patients' idiosyncratic beliefs were also considered to be critical for optimal treatment planning and an accurate understanding of examination and treatment findings (Turk 1996).

As well as contributing to convictions of disability, increased focus on and preoccupation with the body and pain, may predispose to disturbances of routine physiological processes, with potential misinterpretation of the sensory consequences (Ciccone and Grzesiak 1984). For instance, Flor et al (1995) showed that simply the topic of pain was sufficient to produce site specific changes in back muscle activity (measured electromyographically) with back pain patients. Main and Watson (1996) found a significant correlation between patients' fear-avoidance beliefs and abnormalities of muscle action displayed on surface EMG. Restoration towards normal muscle patterns followed a specific pain management program designed to address these beliefs. No relationship was found between ranges of lumbar movement or pain intensity; the only observed association was with reductions in patients' fear of activity-related hurt and harm. Interestingly, it appears that even routine physiological responses are somehow distorted in patients with back pain. Following an experimental noxious stimulus to the upper limb (cold pressor test), normal subjects demonstrated the anticipated reflex increase in surface EMG activity in the upper trapezius. However, this shoulder muscle activity was not only absent in patients with back pain, but also appeared instead, in muscles of the relevant lumbar region (Main and Watson 1996).

Main and Watson (1996) concluded that largely because of the self-perpetuating disabling fear-avoidance behaviour to which they give rise, patients' harm-signalling beliefs about pain and work are a major risk factor for the development of chronicity. Recent studies of acute back pain

clearly demonstrated that beliefs held at or soon after the time of initial pain onset exert a powerful influence on treatment outcome (Main and Watson 1996). According to these authors, an essential element to prevent unnecessary chronicity is to include such entities as beliefs about the cause, meaning, prognosis and therefore appropriate management of back pain in the initial assessment (Main and Watson 1996). Similar sentiments were expressed by Waddell et al (1993, p. 165): "To prevent chronicity, such inappropriate fear-avoidance beliefs would need to be recognised from the acute stage, tackled directly and changed early before they become fixed. Indeed it is possible that the first step to successful rehabilitation may be to overcome mistaken fear-avoidance beliefs".

The need for belief management

As Saal (1995) has pointed out, the structural paradigm for (low) back pain failed to meet the challenge; any validation this may have had has begun to fall apart. Large disc herniations with unequivocal evidence of nerve compression may be asymptomatic. Changes in reported pain occur independently of decompression following the structure altering interventions discectomy and chemonucleolysis (Saal 1995). Nachemson (1996) has been critical of the hit-or-miss symptomatic results for structure/movement altering surgery (fusion) in patients having presumably the same physical indicators. There was an even weaker relationship between the subjective indicator, patients' reports of "same pain" to mechanical provocation (discography), and post surgical functional outcome (Nachemson 1996). Similar uncertainty and criticism continue to surround other structure-based diagnostic labels such as "facet syndrome", radiographic instability and sacroiliac joint dysfunction (Jackson 1992, Nachemson 1992 and 1996, Pope et al 1992, Sato and Kikuchi 1993).

It is well known that the entire spine

From Page 17

undergoes readily visible structural changes from birth to death which are not paralleled by the morbidity curve (Kraemer 1995, Twomey 1992). Furthermore, the natural history for the vast majority of causes and episodes of back pain is benign; even for many of the so-called specific diagnoses the prognosis is generally good (Fordyce 1995, Kraemer 1995, Nachemson 1992 and 1996). Increasingly, the recommendation has been to attempt to avoid invasive, truly structure-altering interventions wherever possible. This recommendation is based on both bitter experience and substantial sound research evidence (Fordyce 1995). On the other hand, also as a result of observation and (lack of) investigation, there is little enthusiasm for many of the currently available conservative treatments for back pain (Bigos and Davis 1996, Long 1995, Reitman and Esses 1995). A singular, and some might say unlikely, exception is (chiropractic) manipulation (Curtis 1988, Hadler et al 1987, Meade et al 1990, Nachemson 1992). It should be made clear, however, that the current endorsement of this manoeuvre is not dependent on knowing, or even the existence, of an acceptable specific therapeutic mechanism (Cherkin 1992, Coulehan 1985, Hadler 1996). Postacchini (1996, p. 1385) is probably not alone in suspecting that for discogenic back and radicular pain "...conservative treatment corresponds to no treatment, the outcome reflecting the natural history". Identical success rates (80 per cent) claimed for a wide range of diverse treatments, and providers, have led Deyo and Phillips (1996) to question whether in fact there had been any modification of the natural history. Similarly, Waddell (1987) came to the conclusion that, with very few barely clinically significant exceptions, no treatment for back pain was that much better than a combination of natural history and placebo. Hadler has stated that, for the bulk of back pain, the cause is indeterminate, the natural history benign and that nearly all interventions

do not alter the outcome (Hall and Hadler 1995).

Thus Kraemer (1995) is confident that, given time, even a specific diagnosis such as discogenic back and sciatic pain will generally subside. It is certainly reasonable to attempt to keep most types of pain to a minimum with relatively inexpensive and justifiable treatment. Nevertheless, in the overwhelming majority of instances, it can be confidently expected that pain curves will drop (Kraemer 1995). The involved parties (patient, provider, funder) need only to exercise sufficient and reasonable patience and endurance (Fordyce 1995, Kraemer 1995, Nachemson 1996). Unfortunately, at least in part because of the modern structure-oriented understanding as to the cause, meaning, prognosis and appropriate management of back pain, this is rarely the path taken (Waddell 1987 and 1995). Instead, management is surrendered to a preferred professional(s) and various appropriate and inappropriate interventions are undertaken. Functional recovery depends largely on two factors: the extent to which these interventions, along with a host of psychosocial factors influence the perception of pain; and the handling of fears of structural relapse. Even with specific diagnoses, indication for the well intentioned prescription of a procession of (unsuccessful) interventions has often been patients' belief-driven distress and illness behaviour (Waddell 1987, Fordyce 1995). However, it is with the so-called non-specific presentations, in other words, the bulk of back pain, that erroneous structure-oriented beliefs have the greatest potential to be unnecessarily disabling.

One way in which this occurs has been described by Beattie (1996, p. 606) while commenting on the impossibility, and the danger, of attempting to classify, or guide the treatment of back pain on the pathoanatomic findings of imaged structure (in this case with MRI): "All but the most severe findings of disk degeneration or herniation visible on MRI are non-specific for LBP or

radiculopathy. The finding of disk abnormality, however, may have a profound effect on a patient's belief regarding the severity of his or her clinical condition. This perception may lead the patient to believe that his or her spine is permanently damaged and that he or she will be permanently disabled." McCallum et al (1996) were sufficiently concerned with the potential clinical and rehabilitative impact of such dysfunctional structure-based cognitions to offer a highly successful radiology conference as a component of their (back) pain management program. Following expert explanation as to the true meaning and significance of various radiological and anatomical findings, patients volunteered expressions of relief at discovering that most visible structural changes were not significant and that graduated activity was quite safe. There were also expressions of anger at having been unnecessarily concerned and functionally impeded by past conflicting misinformation (McCallum et al 1996). Clearly there is the urgent need to question how it is that lay populations of the Western world came to hold such erroneous, distressing and potentially disabling structure-oriented beliefs in the first place. This inquiry is probably a necessary prerequisite to the introduction of a concerted campaign for their eradication. As mentioned earlier, the costly social and economic consequences of these beliefs are the fear-avoidance and compulsive resource consuming behaviours they tend to instigate when combined with the mechanically provoked perception, or even simply the anticipation, of pain.

The actual nature of the sensory input and mechanisms responsible for the ongoing perception of non-specific back pain(s) is a matter of some importance and disagreement, and the subject of a separate discussion in itself (see for example Waddell et al 1993, Zusman 1997a and 1997b). Any tendency, on the part of both patient and provider, to mis-label and misinterpret non-pathological sensory input would add a further dimension to

the potentially disabling consequences of dysfunctional structure-oriented beliefs regarding back pain (Barsky and Borus 1995, Ciccone and Grzesiak 1984, Main and Watson 1996, Pilowsky 1995, Turk 1996, Waddell et al 1993). Mistaken inferences are also fundamental to the proposal by Rose et al (1993) who concluded that chronic disability due to back pain was largely a result of misinformation about the meaning of perceived pain. The familiar picture of distress, illness behaviour, excessive resource utilisation and lack of function was considered to be a direct consequence of the seemingly unreasonable (and unnecessary) expectation and demand by patients for complete pain relief. However, this need could be readily understood in terms of the misinformed belief that since pain was evidence of some serious underlying structural pathology, its lingering presence meant that recovery was incomplete. In other words, that some hypothetical physical impairment remained uncorrected. Therefore, until pain had totally disappeared, routine activity could not be safely contemplated (McCallum et al 1996, Rose et al 1993, Salmon et al 1996). Again it was noted how grateful patients were to be given an accurate understanding of perceived pain, and angry at having been unnecessarily stressed by the unfounded and frequently unrealistic belief in the need for its complete elimination. These authors also made reference to the ease with which common "stiffness pain" might be misconstrued as serious and pathognomonic, and so become grounds for activity avoidance and the demand for passive treatment (Rose et al 1993, see also Fordyce 1988).

Conclusion

Troup (1996) is probably correct in asserting that successful control over the dysfunctional and costly beliefs and behaviours of patients with back pain will require a thorough investigation and understanding of their cause. The need by patients to have their pain legitimised by the explicit or implicit message that it has some purported

pathoanatomical origin is understandable. Among other things, this is necessary in order for them to successfully negotiate the modern compensation system with its structure-based method of impairment rating and disability determination (Fordyce 1995, Hadler 1995). This disabling demand is one of the major reasons why there has been a concerted call for the disbandment of the current system (Fordyce 1995, Hadler 1995, Loeser 1996). Furthermore, patients' self respect and sanity demand that pain could not possibly be "all in the head" (Barsky and Borus 1995, Borkan et al 1995). However, from a provider's perspective it might be noted that, far from being a success, the clinical management of back pain in Western societies, particularly during the latter half of this century, has been an unqualified failure. And, whether because of ignorance, blind adherence to the purported infallibility of clinical impressions or seemingly informed logic, the bestowing of inappropriate and incorrect diagnoses, and therefore related interventions, is now recognised as being largely responsible. As the evidence clearly demonstrates, patients pay an undeservedly high price in return for structure-oriented diagnoses and treatment of their back pain.

Acknowledgements

I would like to thank Dr Patricia Sullivan, Lorna Rosenwax and Dr John Quintner for their comments and advice.

References

- Allan DB and Waddell G (1989): An historical perspective on low back pain and disability. *Acta Orthopaedica Scandinavica* 60: 1-23.
- Barsky AJ and Borus JF (1995): Somatization and medicalization in the era of managed care. *Journal of the American Medical Association* 274: 1931-1934.
- Beattie P (1996): The relationship between symptoms and abnormal magnetic resonance images of lumbar intervertebral disks. *Physical Therapy* 76: 601-608.
- Bigos SJ and Davis GE (1996): Scientific application of sports medicine principles for acute low back problems. *Journal of Orthopedic and Sports Physical Therapy* 24: 192-206.
- Bigos SJ, Battie MC, Spengler DM, Fisher LD, Fordyce WE, Hansson TH, Nachemson AL and Wortley MD (1991): A prospective study of work perceptions and psychosocial factors affecting the report of back injury. *Spine* 16: 1-6.
- Borkan J, Reis S, Hermoni D and Biderman A (1995): Talking about the pain: a patient-centered study of low back pain in primary care. *Social Science and Medicine* 40: 977-988.
- Burton AK, Tillotson KM, Main CJ and Hollis S (1995): Psychosocial predictors of outcome in acute and subchronic low back trouble. *Spine* 20: 722-728.
- Cats-Baril WL and Frymoyer JW (1991): Identifying patients at risk of becoming disabled because of low-back pain. *Spine* 16: 605-607.
- Cherkin DC (1992): Family physicians and chiropractors: what's best for the patient? *Journal of Family Practice* 35: 505-506.
- Cherkin DC and MacCornack FA (1989): Patient evaluations of low back pain care from family physicians and chiropractors. *Western Journal of Medicine* 150: 351-355.
- Cherkin DC, MacCornack FA and Berg AO (1988): Managing low back pain - a comparison of the beliefs and behaviours of family physicians and chiropractors. *Western Journal of Medicine* 149: 475-480.
- Ciccone DS and Grzesiak RC (1984): Cognitive dimensions of chronic pain. *Social Science and Medicine* 19: 1339-1345.
- Coultan JL (1985): Chiropractic and the clinical art. *Social Science and Medicine* 21: 383-390.
- Curtis P (1988): Spinal manipulation: does it work? *Occupational Medicine: State of the Art Reviews* 3: 31-44.
- Deyo RA and Phillips WR (1996): Low back pain a primary care challenge. *Spine* 21: 2826-2832.
- Feuerstein M and Beattie P (1995): Biobehavioural factors affecting pain and disability in low back pain: mechanisms and assessment. *Physical Therapy* 75: 267-280.
- Flor H, Turk DC and Birbaumer N (1995): Assessment of stress-related responses in chronic back pain patients. *Journal of Consulting and Clinical Psychology* 53: 354-364.
- Fordyce WE (1988): Psychological factors in the failed back. *International Disability Studies* 10: 29-31.
- Fordyce WE (1995): Back Pain in the Workplace. Seattle: IASP Press.
- Frymoyer JW (1992): Predicting disability from low back pain. *Clinical Orthopaedics and Related Research* 279: 101-109.
- Frymoyer JW and Cats-Baril W (1991): An overview of the incidences and costs of low back pain. *Orthopedic Clinics of North America* 22: 263-271.
- Gatchell RJ, Polatin PB and Mayer TM (1995): The dominant role of psychosocial risk factors in the development of chronic low back pain disability. *Spine* 20: 2702-2709.

From Page 19

- Hadler NM (1995): The disabling backache. *Spine* 20: 640-649.
- Hadler NM (1996): Point of view. *Spine* 21: 355.
- Hadler NM, Curtis P, Gillings DB and Stinnett S (1987): A benefit of spinal manipulation as adjunctive therapy for acute low back pain: a stratified controlled trial. *Spine* 12: 703-706.
- Hall H and Hadler NM (1995): Low back school. *Spine* 20: 1097-1098.
- Hazard RG, Haugh LD, Reed S, Preble JB and MacDonald L (1996): Early prediction of chronic disability after occupational low back injury. *Spine* 21: 945-951.
- Indahl A, Velund L and Reikeraas O (1995): Good prognosis for low back pain left untampered. *Spine* 20: 473-477.
- Jackson RP (1992): The facet syndrome. *Clinical Orthopaedics and Related Research* 279: 110-121.
- Jensen MP, Romano JM, Turner JA, Good AB and Wald LH (1996): The Survey of Pain Attitudes: further evidence for validity. Abstracts 8th World Congress on Pain. Seattle, p. 73.
- Klenerman L, Slade PD, Stanley M, Pennie B, Reilly JP, Atchison LE, Troup JDG and Rose MJ (1995): The prediction of chronicity in patients with an acute attack of low back pain in a general setting. *Spine* 20: 478-488.
- Kraemer J (1995): Presidential address: natural course and history of intervertebral disk diseases. *Spine* 20: 635-639.
- LaCroix JM, Powell J, Lloyd GJ, Doxey NCS, Mitson GL and Aldam CF (1990): Low back pain factors of value in predicting outcome. *Spine* 15: 495-499.
- Loeser J (1996): Back pain in the workplace. II. *Pain* 65: 7-8.
- Loeser JD and Sullivan K (1995): Disability in the chronic low back pain patient may be iatrogenic. *Pain Forum* 4: 114-121.
- Long DM (1995): Effectiveness of therapies currently employed for persistent low back and leg pain. *Pain Forum* 4: 122-125.
- McCallum K, Large RG and Petrie K (1996): "The radiology conference": helping patients demystify their pain. Abstracts 8th World Congress on Pain. Seattle, p. 66.
- McCracken LM, Zayfert C and Gross RT (1992): The Pain Anxiety Symptoms Scale: development and validation of a scale to measure fear of pain. *Pain* 50: 67-73.
- Main CJ and Watson PJ (1996): Guarded movements: development of chronicity. *Journal of Musculoskeletal Pain* 4: 163-170.
- Meade TW, Dyer S, Browne W, Townsend J and Frank AO (1990): Low back pain of mechanical origin: randomised comparison of chiropractic and hospital outpatient treatment. *British Medical Journal* 300: 1431-1437.
- Mooney V (1987): Where is the pain coming from? *Spine* 12: 754-759.
- Nachemson AL (1992): Newest knowledge of low back pain. *Clinical Orthopaedics and Related Research* 279: 8-20.
- Nachemson AL (1996): Lumbar disc disease with discogenic pain. *Spine* 21: 1835-1836.
- Phillips HC (1987): Avoidance behaviour and its role in sustaining chronic pain. *Behaviour Research and Therapy* 25: 273-279.
- Pilowsky I (1995): Low back pain and illness behaviour. *Spine* 20: 1522-1524.
- Pope MH, Frymoyer JW and Krag MH (1992): Diagnosing instability. *Clinical Orthopaedics and Related Research* 279: 60-67.
- Postacchini F (1996): Results of surgery compared with conservative management for lumbar disc herniations. *Spine* 21: 1383-1387.
- Reitman CA and Esses SI (1995): Modalities, manual therapy, and education: a review of conservative measures. *Spine: State of the Art Reviews* 9: 661-672.
- Riley JF, Ahern DK and Follick MJ (1988): Chronic pain and functional impairment: assessing beliefs about their relationship. *Archives of Physical Medicine and Rehabilitation* 69: 579-582.
- Rose MJ, Reilly JP, Pennie B and Slade PD (1993): Chronic low back pain: a consequence of misinformation? *Employee Counselling Today* 5: 12-15.
- Saal JA (1995): The pathophysiology of painful lumbar disorder symposium. *Spine* 20: 1803.
- Salmon P, Woloshynowych M and Valori R (1996): The measurement of beliefs about physical symptoms in English general practice patients. *Social Science and Medicine* 42: 1561-1567.
- Sato H and Kikuchi S (1993): The natural history of radiographic instability of the lumbar spine. *Spine* 18: 2075-2079.
- Seres JL (1995): Physicians do not cause disability due to low back pain but they inadvertently contribute to the problem. *Pain Forum* 4: 129-131.
- Spitzer WO, LeBlanc FE and Dupuis M (1987): Scientific approach to the assessment and management of activity-related spinal disorders. *Spine* 12: S22-S30.
- Szpalski M, Nordin M, Skovron ML, Melot C and Cukier D (1995): Health care utilization for low back pain in Belgium. *Spine* 20: 431-442.
- Teasell RW and Harth M (1996): Functional restoration returning patients with chronic low back pain to work - revolution or fad? *Spine* 21: 844-847.
- Troup JDG (1996): Review essay. *Social Science and Medicine* 42: 561-563.
- Turk DC (1996): Psychological aspects of chronic pain and disability. *Journal of Musculoskeletal Pain* 4: 145-153.
- Twomey LT (1992): A rationale for the treatment of back pain and joint pain by manual therapy. *Physical Therapy* 72: 885-892.
- Vernon H (1996): The role of joint dysfunction in spinal myofascial pain. *Journal of Musculoskeletal Pain* 3: 99-104.
- Vlaeyen JWS, Kole-Snijders AMJ, Boeren RGB and van Eek H (1995): Fear of movement/(re)injury in chronic low back pain and its relation to behavioural performance. *Pain* 62: 363-372.
- Volinn E (1996): Between the idea and reality: research on bed rest for uncomplicated acute low back pain and implications for clinical practice patterns. *The Clinical Journal of Pain* 12: 166-170.
- Waddell G (1987): A new clinical model for the treatment of low-back pain. *Spine* 12: 632-644.
- Waddell G (1992): Biopsychosocial analysis of low back pain. *Baillieres Clinical Rheumatology* 6: 523-557.
- Waddell G (1995): Modern management of spinal disorders. *Journal of Manipulative and Physiological Therapeutics* 18: 590-596.
- Waddell G, Newton M, Henderson I, Somerville D and Main CJ (1993): A Fear-Avoidance Beliefs Questionnaire (FABQ) and the role of fear-avoidance beliefs in chronic low back pain and disability. *Pain* 52: 157-168.
- Waddell G and Turk DC (1992): Clinical assessment of low back pain. In: Turk DC and Melzack R (Eds) *Handbook of Pain Assessment*, New York: The Guilford Press, pp. 15-36.
- Wardwell WI (1993): Chiropractic: History and Evolution of a New Profession. St Louis: Mosby-Year Book.
- Zusman M (1984): Spinal pain patients' beliefs about pain and physiotherapy. *Australian Journal of Physiotherapy* 30: 145-151.
- Zusman M (1995): The clinical variable of primary significance. In: Shacklock MO (Ed.): *Moving in on Pain*. Melbourne: Butterworth-Heinemann, pp. 27-31.
- Zusman M (1997a): Instigators of activity intolerance. *Manual Therapy* 2: 75-86.
- Zusman M (1997b): Nociception maintaining post-healing "mechanical" back pain. Proceedings MPAA 10th Biennial Conference. Melbourne, pp. 224-229.