

Biographical, pain and psychosocial data for a South African sample of chronic pain patients

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Abstract

Objective: To gather biographical and pain data for a sample of South African patients visiting a specialist pain control unit. To investigate the role of various psychosocial variables in this sample's chronic pain experience. **Subjects and Method:** 325 adult outpatients from a chronic pain unit completed a biographical questionnaire, the West Haven-Yale Multidimensional Pain Inventory, as well as various supplementary scales of the Minnesota Multiphasic Personality Inventory-2. Diagnostic data were also gathered for the sample. Descriptive statistics were calculated for the sample and t-tests were used to compare the current sample's mean scores on the measuring instruments with those of American normative samples. **Results:** The South African sample displayed elevated levels of perceived pain-related functional limitations, as well as an increase in the frequency of psychopathology and emotional distress. However, the current sample also reported higher levels of social support and were inclined to be more socially and physically active when compared with individuals in other studies. **Conclusion:** Specific demographic and diagnostic tendencies appear evident in the current sample. Furthermore, South African chronic pain patients seem to exhibit similar, if not perhaps more pronounced, psychosocial profiles to a comparable American sample. Various suggestions for further research are also made.

Key Words: Chronic pain, Psychosocial functioning, Depression, Anxiety, Health concerns, Functional impairment, Perceived support

Introduction

Chronic pain has long been considered a significant healthcare and economic challenge.¹⁻³ However, isolated traditional medical treatments for chronic pain are internationally viewed as only being one half of the solution to this problem. Mounting evidence suggests that a wide variety of situational, environmental, interpersonal and intrapersonal variables contribute to an individual's idiosyncratic experience of chronic pain.⁴⁻⁹ In particular, it is generally accepted that there is a significantly higher prevalence of depression and anxiety amongst chronic pain patients than in the general population.¹⁰⁻¹¹ Nonetheless, little consensus appears to be reached in the literature regarding the specific character of these conditions amongst chronic pain sufferers, nor with regard to the particular nature of the interaction between these emotional difficulties and the individual's personal experience of chronic pain. However, more recently the opinion tends to be that the

interaction between emotional distress and chronic pain is interactional in nature, with the challenges of living with a chronic medical condition increasing an individual's susceptibility to emotional difficulties, while simultaneously the presence of emotional distress is thought to perpetuate and even intensify the pain experience.^{1,10}

Based on the preceding discussion, it would seem that the more holistic a chronic pain treatment approach is, the greater the chances are of success and long term maintenance of results. This is borne out in the literature where multidisciplinary approaches to the treatment of chronic pain appear to not only deliver better short-term pain relief and patient-driven pain management, but also result in the maintenance of these gains over a longer period of time compared with purely medical interventions.^{3,12-14} However, the reality within the Southern African context is that limited financial resources, shortages of appropriate expertise and a wide geographical distribution of patients make the local attainment of this ideal very difficult. The result is that specialist chronic pain treatment facilities are few and far between. Consequently, the responsibility for the management of many chronic pain conditions frequently reverts to the anaesthesiologist. Moreover, whilst access to physiotherapists, occupational therapists and social workers is available in most

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hospital settings, specialist health psychologists appear to be at a premium. Explanations for this state of affairs could range from shortages of adequately trained individuals, to a tendency for medical specialists outside of the field of psychiatry to have little knowledge of the services provided by psychologists. Subsequently, referrals are not made. Nonetheless, significant increases in symptom relief and functional improvement may be achieved by effectively addressing psychosocial factors commonly associated with the experience of chronic pain, such as increased familial conflict, increased rates of depression and anxiety, dysfunctional somatic focus/awareness and increased assumption of the sick role amongst chronic pain patients.¹⁴ However, limited information if any, is available regarding the prevalence and character of the aforementioned psychosocial variables within the Southern African context. The aim of this study was thus to gather biographical and psychosocial data from patients visiting a South African specialist Pain Control Unit, in order to start establishing locally relevant chronic pain profiles with regard to these variables. It is hoped that highlighting the multidimensionality of local patients' experience will increase physician's sensitivity to the role that psychosocial factors may play in maintaining and even intensifying chronic pain.

Method

Patients visiting the Pain Control Unit at the Universitas Hospital in Bloemfontein between February and November 2005 were approached to participate in the study. Informed consent was obtained from 352 individuals. The participants were required to complete a questionnaire consisting of biographical questions, the West Haven-Yale Multidimensional Pain Inventory (WHYMPI) and also the Addiction Potential, Anxiety, Health Concerns and Depression supplementary subscales of the Minnesota Multiphasic Personality Inventory – II (MMPI-2). Reliability coefficients of between 0,62 and 0,91 are reported for the various WHYMPI subscale scores of an American sample.¹⁵⁻¹⁶ The MMPI-2 supplementary scales are reported to display acceptable validity when compared with the ten MMPI-2 clinical scales. The Health Concerns Supplementary Subscale shows a 0,965 correlation with the Hypochondriasis Clinical Scale; the Depression Supplementary Scale demonstrates a 0,796 correlation with the Depression Clinical Scale; while the Anxiety Supplementary Scale demonstrates a correlation of 0,799 with the Depression Clinical Scale.¹⁷ Both questionnaires were translated into Afrikaans and Sesotho (two of the most widely spoken languages in south-eastern central South Africa) via the back-translation method. The internal reliability of each translated subscale was calculated for the sample described below.

Three hundred and twenty five of the questionnaires were completed sufficiently to be used for data analysis. Diagnostic information was garnered from patient files. However, diagnoses were available for only 276 of the participants. Descriptive statistics were calculated for biographical and diagnostic data, and are reported below. Means and standard deviations were calculated for the sample's scores on the MMPI-2 (as a measure of personality functioning and psychopathology) supplementary scales and the WHYMPI (as a measure of the psychosocial factors associated with chronic pain) subscales. A two-tailed t-test was carried out in order to determine whether the current sample's WHYMPI subscale

scores differed significantly from the original American sample. Similarly, the South African sample's MMPI-2 supplementary scale scores were compared with those of the original American norm group.

Results

Biographical and pain data for the final sample of 325 chronic pain patients are reported in Table 1.

Table 1: Biographical and pain data for a South African sample of chronic pain patients (n = 325)

	Frequency	Percentage
Gender		
Female	225	69.23
Male	100	30.77
Age		
≤ 40 years	64	19.69
41 – 60 years	142	43.69
≥ 61 years	119	36.62
Language		
Afrikaans	285	87.69
English	20	6.15
Sesotho	7	2.15
Tswana	10	3.08
Other	3	0.92
Education		
≤ 10 years	67	25.48
11 – 12 years	126	47.91
≥ 13 years	70	26.62
n = 263		
Origin of pain		
Injury	108	33.23
Post operative	30	9.23
Spontaneous	118	36.31
Nonspecific	62	21.23
Pain chronicity		
≤ 6 months	39	12.07
≥ 1 year < 2 years	37	11.46
≥ 2 years < 5 years	60	18.58
≥ 5 years	187	57.89
n = 323		

It is apparent from Table 1 that in excess of two thirds of the participants were female (69,23%). Age tended to be unevenly distributed with 80,31% of the individuals receiving treatment for chronic pain being 40 years of age or older, with a total range of 20 to 84 years. The distribution of language in the sample is reflective of the geographical area primarily serviced by the Pain Control Unit, with the vast majority (285 individuals) reporting Afrikaans as their first language. With regard to the remainder of the sample, English (6,15%) and SeTswana (3,08%) appear to be the next most well represented language groups. The majority of participants (73,38%) report having completed 12 years or less of formal education. Seventy individuals (26,62%) stated that they had engaged in some form of tertiary education or training.

Patients making use of the Pain Control Unit's services were also asked to provide information regarding the origin and chronicity of their pain. This data is also listed in Table 1. The most common origin of pain within the sample appears to have been spontaneous (36,31%). These individuals mostly viewed their pain as a symptom of another medical condition or as a

pain syndrome in itself. Injury-related pain accounted for a further 33,23% of the cases reported, with inexplicable or non-specific origins being the third most frequent (21,23%), and post-operative pain (9,23%) accounted for the remainder. The reported levels of pain chronicity appear to be skewed toward a more long-term experience of chronic pain, with 57,89% (187 individuals) of the respondents claiming to have lived with their current pain difficulties for in excess of five years. A further 60 (18,58%) individuals reported pain that had been present in excess of two years but less than five years. The remaining 23,53% of the sample had suffered from their current pain condition for a year or less.

Table 2 provides an exposition of the most frequent diagnoses provided for patients visiting the Pain Control Unit between February and December 2005.

Table 2: Primary diagnoses for patients visiting a South African Pain Control Unit between February and December 2005 (n = 276)

Primary Diagnosis	Frequency	Percentage
Chronic lower back pain	136	49,28
Neuropathic pain	16	5,80
Post-herpetic neuralgia	9	3,26
CRPS ₁	7	2,54
Headache	12	4,35
MPS ₁	64	23,19
Joint pain	5	1,81
Post-operative pain	4	1,45
Injury-related pain	2	0,72
Arthritic pain	6	2,17
Other	15	5,43

₁ Complex Regional Pain Syndrome
₂ Myofascial Pain Syndrome

As stated previously, complete diagnostic data was only available for 276 of the participants. One hundred and thirty six individuals (49,28%) were found to have a diagnosis of chronic lower back pain. This group represented the highest incidence of a single diagnosis by far within the greater patient sample. Myofascial Pain Syndrome accounted for the second highest frequency of diagnoses with 23,19% of the sample being diagnosed with this condition. Heterogeneous groupings of neuropathic pain (5,80%) and headache (4,35%) respectively accounted for the third and fifth highest diagnostic frequencies within the current patient group. Diagnoses with a frequency of four individuals or less (with the exception of post-operative pain) were clustered together in the "Other" category and accounted for the fourth highest frequency of diagnosis (5,43%).

Due to the large preponderance of Afrikaans-speaking participants in the sample as a whole (87,69%), it was decided that meaningful interpretation of the West Haven-Yale Multidimensional Pain Inventory (WHYMPI) and Minnesota Multiphasic Personality Inventory-II (MMPI-2) supplementary subscales would necessitate the exclusion of the other, relatively underrepresented groups from further analysis. Consequently, Table 3 depicts the Afrikaans-speaking sample's appraisals of their pain, as well as their beliefs related to this experience of pain. Moreover, information regarding the impact that their pain has on their functioning is also reported, along with the reactions of those closest to them, in relation to their pain complaints. In addition, the mean scores of each of the WHYMPI subscales reported for the Afrikaans-speaking sample

are compared with those reported for the original American WHYMPI standardisation sample in an attempt to identify any similarities or differences with regard to the psychosocial pain-related experiences of the two groups.¹⁵

Table 3: Means and standard deviations on the West Haven Yale Multidimensional Pain Inventory (WHYMPI) subscales for an American (n=120) and Afrikaans-speaking South African (n=280) sample of pain patients

WHYMPI subscale	American		Afrikaans South African		t
	Mean	SD	Mean	SD	
Interference	3.74	1.26	4.08	1.18	2.54*
Support	4.31	1.47	4.64	1.57	2.01*
Pain Severity	3.55	1.11	4.70	1.04	10.09**
Life-Control	3.63	1.57	3.65	1.40	0.15
Affective Distress	3.23	1.32	3.69	1.32	3.19**
Negative Responses	0.97	0.94	1.68	1.42	6.02**
Solicitous Responses	2.57	1.15	3.73	1.67	8.00**
Distracting Responses	1.72	1.11	2.69	1.42	7.46**
Household Chores	2.71	1.30	3.67	1.66	6.19**
Outdoor Work	1.19	1.04	1.31	1.23	1.02
Activities Away from Home	1.79	0.83	2.29	1.29	4.45**
Social Activities	1.94	0.95	2.47	1.27	4.49**

*≥ 5% level of significance; **≥ 1% level of significance

Two-tailed t-tests were performed, in order to determine whether any significant differences exist between the current sample and the original WHYMPI standardisation sample, with regard to 12 areas of pain-related psychosocial functioning.¹⁶ It is apparent from Table 3 that the Afrikaans-speaking chronic pain sample reported significantly higher levels of pain severity, rates of affective distress, and negative responses from significant others, with regard to their pain compared with the American sample. These differences are significant at the 1% level. The degree to which the Afrikaans-speaking sample perceived their pain to interfere with their ability to effectively function within their daily lives also appears to be significantly higher than that reported for the American sample, but only at the 5% level of significance. Conversely however, the Afrikaans-speaking sample also reported significantly higher levels of social support (Support), more frequent attempts by their significant others to distract (Distracting Responses) them from their pain, or to facilitate their physical comfort (Solicitous Responses), as well as higher levels of physical (Household Chores, Activities Away from Home) and social activity than was reported by the American sample. All the preceding differences were significant at the 1% level, with the exception of differences on the Support subscale which were significant at the 5% level. The samples did not appear to differ significantly with regard to the degree of control they felt they had over their lives despite their pain, as well as with regard to the degree to which they reported still being able to engage in physical outdoor activities such as gardening etc.

Since the Afrikaans-speaking chronic pain sample appeared to differ significantly from the American sample regarding various pain-related aspects of psychosocial functioning, it was decided to further investigate the prevalence of specific emotional difficulties or psychopathologies within the Afrikaans-speaking group. Consequently, two tailed t-tests were carried out in order to determine whether or not the Afrikaans-speaking sample differed significantly from the original

American MMPI-2 normative sample on four MMPI-2 supplementary scales, reported to measure aspects of psychopathology often associated with chronic pain. The four supplementary subscales selected measured depression, anxiety, general health concerns and the individual's substance addiction potential.^{15,17} This data is depicted in Table 4 for female patients and Table 5 for male patients.

Table 4: Mean calculations for a female sample of Afrikaans-speaking South African chronic pain patients on four MMPI-2 Supplementary Scales

	<i>Afrikaans South African (n=55)</i>		<i>MMPI-2 Normative Sample (n=1462)</i>		
<i>Supplementary scale</i>	<i>MEAN</i>	<i>SD</i>	<i>MEAN</i>	<i>SD</i>	<i>t</i>
Depression	13.15	7.42	5.86	5.02	7.105**
Anxiety	20.33	9.97	6.53	4.51	10.22**
Health concerns	17.46	5.62	6.16	4.47	14.72**
Addiction potential	20.17	4.64	23.13	3.71	-4.59**
**≥ 1% level of significance					

Table 5: Mean calculations for a male sample of Afrikaans-speaking South African chronic pain patients on four MMPI-2 Supplementary Scales

	<i>Afrikaans South African (n=29)</i>		<i>MMPI-2 Normative Sample (n=1138)</i>		
<i>Supplementary scale</i>	<i>MEAN</i>	<i>SD</i>	<i>MEAN</i>	<i>SD</i>	<i>t</i>
Depression	12.25	7.29	4.79	4.62	5.41**
Anxiety	19.23	8.84	5.53	4.17	7.87**
Health concerns	14.31	14.31	5.29	3.91	9.02**
Addiction potential	20.64	20.64	23.37	3.69	-3.79**
**≥ 1% level of significance					

In contrast to the WHYMPI normative data which was only available for a combined sample, the MMPI-2 supplementary scale data is reported per gender group and thus comparisons with the current sample are also made separately for each gender. It is apparent from both tables that both male and female chronic pain patients from the Afrikaans-speaking sample display significantly higher levels of anxiety and depression than are evident for the original MMPI norm group. Males and females in the current sample are also significantly more inclined to express concerns related to their physical health than were those in the MMPI-2 norm group. However, both Afrikaans-speaking groups appear to show a significantly lower potential for substance addiction, than was reported for the American norm group. All differences reported with regard to the MMPI-2 supplementary subscales are significant at the 1% level.

Discussion

The biographical data suggests that the majority of chronic pain sufferers are women over the age of 40. Most of the respondents reported having 12 years or less of formal education, with the largest percentage reporting between 11 and 12 years. The most frequent initial causes of pain appeared to be either inexplicable, the result of an injury or due to another medical condition. The most frequently noted period of pain chronicity was five years or longer, with a significant proportion of patients also reporting having suffered from pain for between two and five years. Chronic low back pain, Myofascial Pain Syndrome and a variety

of neuropathic conditions were the most frequent diagnoses within the current sample. This data is presented for descriptive purposes only, as a lack of existing data both locally and internationally made inter-study comparisons impossible. However, it is hoped that this will serve as a starting point for the collection of more extensive normative data for local and regional chronic pain populations.

The influence of psychosocial variables on the Afrikaans-speaking sample's experience of chronic pain was investigated using 12 WHYMPI subscales. The WHYMPI was developed within a cognitive-behavioural framework specifically for use with chronic pain populations.¹⁶ This instrument is comprised of three conceptually diverse sections. The first assesses the patient's perceptions of pain severity, life interference due to pain, perceived life control, affective distress and social support. The second component assesses the responses of significant others to the patient's expression of chronic pain. The third category of questions helps to determine to what extent the patient is able to engage in 18 common daily activities, and thus provides a measure of occupational and social limitation associated with the experience of pain. The current study compared the mean scores of the Afrikaans-speaking South African sample to those of the original American WHYMPI normative sample on 12 subscales of the measure. The chronic pain patients in our study appear to generally experience higher rates of pain, express more frequent appraisals of their pain as a limiting factor in their lives and report higher levels of emotional distress than were expressed by the American sample. Moreover, the South African sufferers of chronic pain view their significant others as being inclined to react more negatively toward them with regard to their experience of pain when compared with the American sample. However, it is interesting to note that the South African pain patients, while apparently worse affected by their pain than the American sample, report significantly higher levels of support from their significant others (despite more frequent reports of negative reactions to their complaints), and appear to be more socially active, as well as more frequently engaging in various daily activities. The only common ground between the two samples appears to be that they experience similar levels of perceived control over their situations and are inclined to be equally active/inactive in outdoor activities.

The abovementioned WHYMPI profile for the South African sample appears somewhat counterintuitive. It would not be expected that individuals who experience high levels of pain severity, affective distress, and pain-related interference in their lives, with frequent negative responses from their significant others regarding their pain complaints, would also indicate that they are significantly more active than their American counterparts, and also feel that they receive a comparatively high level of social support. The initial reaction to these findings would be to question the validity of the Afrikaans translation of the WHYMPI, as well as the validity of this instrument as a measure of pain-related psychosocial variables within the current context. However, the internal consistency of the translated version of the WHYMPI appears to be acceptable with alpha coefficients ranging from lows of 0,646 for Affective Distress and 0,652 for Social Activities to highs of 0,898 for Support and 0,885 for Solicitous Responses. The criterion validity of the translation also appears within the acceptable range as the subscales appear to correlate highly with the measures of emotional distress that our study found, namely the Anxiety, Depression and Health

Concerns Supplementary Scales of the MMPI-2. An alternate hypothesis is that due to punitive external factors such as the need to function despite their high levels of pain and emotional distress, habituation – meaning that although they experience high levels of pain and emotional distress they have become accustomed to functioning within this context - or facilitation via the high levels of support, solicitous responses and/or distracting responses from significant others help to reduce the impact of the reported pain and emotional distress on these individuals' functioning.⁵ Other factors not addressed in the current study, such as coping responses, difference in personal attitudes and the like, may also have mediated the effect that the negative pain perceptions have on these individuals' levels of social and everyday activity.¹⁰

The presence of psychopathological distress amongst the Afrikaans-speaking pain sample was investigated via the Addiction Potential, Anxiety, Depression and Health Concerns Supplementary Scales of the MMPI-2. The results of a comparison of the current sample to the original normative sample for the MMPI-2 reveal that the chronic pain patients experience significantly higher levels of anxiety and depression than are reported within the general population. Moreover, they are much more likely to be overly concerned with their physical health and are also more likely to misinterpret benign physiological phenomena as signs of disease or injury. This increased susceptibility to psychopathology appears to be equally evident amongst both male and female chronic pain patients and is in general agreement with various other studies into the prevalence of psychopathology amongst chronic pain patients.^{2,4,8,10-11} The chronic pain patients appear to run a significantly lower risk of developing a dependence upon substances than is reported for the American normative sample. This appears to be in keeping with current opinion with regard to the low addiction potential for opiate users within the chronic pain population. Alternately the questions included in the Addiction Potential Supplementary Scale could also be more focussed on commonly abused substances such as alcohol or street drugs. Additionally, considering that more mature individuals (i.e. over the age of forty years) made up the majority of the current sample, there may be increased social pressure on such individuals to deny the presence of substance misuse or addiction. Consequently, questions that are blatant with regard to the addiction/dependence-related responses they are intended to elicit may also be relatively easy to manipulate in order to create a favourable impression of oneself.

Many of the limitations of the current study have been mentioned in the preceding discussion. However, various other weaknesses also need to be highlighted. Firstly, the current sample was too small to enable any diagnosis-based analysis. Consequently, the current findings cannot be generalized outside of a heterogeneous chronic pain population. Secondly, the size and demographic specificity of the sample make it impossible to reliably generalize these findings to chronic pain populations nationwide. Finally, various potentially mediating variables such as coping strategies or interpersonal differences were not considered, and thus their role in the relationship between pain perceptions, disability and psychopathology can neither be reinforced nor discredited. Future research into the psychosocial character of pain within the South African context would thus do well to investigate the effects of coping mechanisms, personal attitudes and problems solving abilities on the individual's

experience of chronic pain. Furthermore, the current study was focussed on a very narrow section of South African society and may thus run the very real danger of giving a highly idiosyncratic image of chronic pain associated psychosocial phenomena.

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