S Lee 李素敏
PP Chen 曾煥彬
A Lee 李煥坤
M Ma 馬　連
CM Wong 黃志明
T Gin

Department of Anaesthesia and Intensive Care, The Chinese University of Hong Kong, Prince of Wales Hospital, Shatin, Hong Kong
S Lee, FANZCA, FHKAM (Anaesthesiology)
A Lee, PhD, MPH
T Gin, MD, FHKAM (Anaesthesiology)
Department of Anaesthesiology and Operating Services, Alice Ho Miu Ling Nethersole Hospital, Tai Po, Hong Kong
PP Chen, FFPMANZCA, FHKAM (Anaesthesiology)
M Ma, BHSc, RN
CM Wong, MPhil

Correspondence to: Dr PP Chen
(e-mail: ppchen@cuhk.edu.hk)

ORIGINAL ARTICLE

A prospective evaluation of health-related quality of life in Hong Kong Chinese patients with chronic non-cancer pain

慢性非癌性疼痛的香港華裔患者與健康有關的生活質素評估：前瞻研究

· ·

Objective. To evaluate the health-related quality of life in Hong Kong Chinese patients with chronic non-cancer pain.

Design. Prospective cross-sectional survey.

Setting. Regional public hospitals, Hong Kong.

Patients. Patients attending out-patient pain management clinics between 1 July 2002 and 28 February 2003 were approached to complete a set of standardised questionnaires.

Main outcome measures. Demographic profiles, treatment modality, litigation, compensation, social welfare status, Hospital Anxiety Depression Scale, and Medical Outcomes Survey short-form health survey (SF36).

Results. Data from 166 patients were analysed. The median numeric pain rating score was 6 (interquartile range, 2-10). Work-related injury occurred in 34.3% of patients, while another 34% were involved in pain-related litigation and 32% were receiving disability or unemployment benefit. Sixty-four percent of patients were managed by three or more disciplines, while 54.8% were also receiving complimentary alternative medical treatment, mainly traditional Chinese medicine (49.7%). The Hospital Anxiety Depression Score indicated clinical anxiety or depression in 71.1% of patients. All SF36 subscale scores were lower than the local population norm. Unemployed patients had higher depression scores (P=0.005), while students or retirees had lower physical functioning scores (P=0.004). Patients who were single had higher role emotion scores than those who were married or separated/widowed (P=0.011). Logistic regression analysis showed that younger age (odds ratio=0.95), being married (6.62), work-related injury (15.63) or higher general health scores (1.03) were more likely to be associated with litigation. Social welfare benefit was associated with unemployment (3.39) and a lower level of physical functioning (0.98).

Conclusion. There was a high prevalence of clinical anxiety, depression, and severe impairment in the health-related quality of life in Hong Kong Chinese patients with chronic non-cancer pain. Specific factors affected the health-related quality of life, likelihood of litigation, and social benefit.

目的：評估慢性非癌性疼痛的香港華裔患者與健康有關的生活質素。
設計：前瞻性橫斷面調查。
安排：分區公立醫院，香港。
患者：2002 年 7 月 1 日至 2003 年 2 月 28 日期間，在醫院痛症門診部就診的病人回答一套標準問卷。

主要結果測量：人口學資料、療法、訴訟、賠償，以及社會福利援助的情況；醫院焦慮和抑鬱量表評分和醫療效果普查健康狀況調查簡表（SF36）評分。

結果：根據166位患者的數據分析，疼痛評分的中位數為6（四分位距為2-10）。34.3%的患者屬工傷，另有34%病者涉及與疼痛有關的訴訟，32%患者正接受傷殘津貼或失業救濟。64%患者由醫院三個或以上的部門共同診治，54.8%同時接受其他輔助治療，主要為傳統中醫療法（49.7%）。醫院焦慮和抑鬱量表評分顯示，71.1%病人有臨床焦慮或抑鬱現象。SF36簡表中所有分量得分都低於本地人口規範。失業病人的抑鬱評分較高（P=0.005），學生和退休人士的身體功能評分較低（P=0.004）。在因角色引起的情緒問題方面，單身的病人比已婚、分居或喪偶者的評分為高（P=0.011）。對數迴歸分析發現，年紀較輕（比數比 =0.95）、已婚（比數比 =6.62）、工傷（比數比 =15.63）或一般健康評分較高的病人（比數比 =1.03）涉及訴訟的關係較大。社會福利援助則與失業（比數比 =3.39）和身體功能評分較低（比數比 =0.98）相關。

結論：在慢性非癌性疼痛的香港華裔患者中，出現臨床焦慮、抑鬱現象，以及與健康有關的生活質素受到嚴重損害的情況相當普遍。特定因素對與健康有關的生活質素、訴訟機會的高低，以及社會福利援助的情況有一定的影響。

Introduction

Chronic pain is a common condition in adults with a median prevalence of 15% (range, 2%-40%) worldwide.[1] A recent survey reported a similar chronic pain prevalence of 10.8% in Hong Kong.[2] Of those respondents who were working, 38% complained that their work was affected and 70% stated that the pain had interfered with their daily life.[2] Chronic pain is increasingly recognised as a global major health problem, at both an individual and a societal level. Health care utilisation, decreased productivity, and compensation claims resulting from chronic pain represent a significant economic burden to many governments.[3,4]

Physical function, psychological and social well-being are often defined as a patient's health-related quality of life (HRQOL).[5] Previous studies established that anxiety, depression, physical disability, and social dysfunction commonly co-exist with chronic pain and affect quality of life.[6-9] Becker et al[9] reported that 58% of patients with chronic non-malignant pain suffered depression or anxiety, and sleep and quality of life were significantly impaired compared with the general population. Another study revealed that patients with chronic neuropathic pain also had impaired quality of life: physical function and emotion were particularly affected.[10] Depression is likely to be a consequence of chronic pain rather than antecedent to the chronic pain condition.[11] The development of depression in chronic pain patients occurs when there is a perceived impact of pain, and a decline in self-control of life.[8,12]

A previous study in Hong Kong Chinese patients with advanced cancer and pain reported a 29% prevalence of depression.[13] Such patients often have significant physical, psychosocial, and spiritual issues that affect quality of life. There is little information on the HRQOL in Chinese patients with chronic non-cancer pain. A Taiwanese study reported that Chinese elderly patients with chronic headaches were more depressed than those without.[14]

A recent survey of the general Chinese population of Hong Kong found a linear relationship between HRQOL and health care service utilisation.[15] The relationship between chronic pain and HRQOL may have a significant impact on planning and prioritisation of health care services. This pilot study aimed to evaluate the HRQOL scores in a group of Hong Kong Chinese patients with chronic non-cancer pain.

Patients and methods

Our chronic pain management service provides pain management on an out-patient basis to the 1.2 million population of the New Territories East region of Hong Kong. The multidisciplinary pain management centre is located at the Alice Ho Miu Ling Nethersole Hospital but satellite out-patient clinics are also located at two other acute hospitals in the region, the Prince of Wales Hospital and the North District Hospital. Pain management clinics are primarily staffed by the same team of anaesthesiology-based pain physicians with input from clinical psychologists, pain nurses, a neurosurgeon, orthopaedic surgeon, neurologist, oncologist, and palliative care physician.

Following ethical approval from the local Research Ethics Committee, all new patients attending the New Territories East region's anaesthesiology-based out-

patient pain management clinics for the first time over an 8-month period were invited to participate in the study. After informed consent was obtained, patients were taught by a pain nurse how to complete the study questionnaires. Those unable to comprehend or answer the questions properly were excluded from the study. Chronic pain was defined as pain lasting longer than 3 months.

Survey questionnaire and quality-of-life instruments

All patients completed three questionnaires. The first evaluated the patient's demographic information: age, sex, level of education, marital status, current employment, pain history including a 10-point rating average current pain score, cause of pain, past treatment, number of current analgesic medications, whether they were receiving social welfare, and whether they were involved in any compensation claim or associated litigation. This questionnaire was adapted from a patient evaluation questionnaire used by the Hong Kong Hospital Authority and at pain management clinics in public hospitals.

At the same visit, patients also completed two HRQOL assessments: the Hospital Anxiety Depression Scale (HADS),[16] and the Medical Outcomes Survey short-form health survey (SF36).[17] Both questionnaires have been previously used in patients suffering chronic pain[9,18,19] and in both instances, a Chinese version, validated in Hong Kong, was used.[20,21] The HADS questionnaire is a 14-question assessment tool that evaluates anxiety (HADS [A]) and depression (HADS [D]) that are each rated from 0 to 21. A score of 8-10 and 11-14 indicates mild and moderate anxiety or depression, respectively. A score of 15 or higher represents a severe disorder. The SF36 is a 36-item general health questionnaire that yields scores on eight health subscales relating to physical function, and social and mental well-being. One item measures health transition while the remaining 35 items are grouped under eight subscales: physical functioning, role functioning (physical), bodily pain, general health perception, vitality, social functioning, role functioning (emotional), and mental health.

Statistics

Frequencies were calculated for descriptive data. Correlation, Mann-Whitney U test, and Kruskal-Wallis test were performed to determine any factor that affected the HADS and SF36 subscale scores. Logistic regression analyses were used to determine the factors associated with litigation and receipt of social welfare after adjusting for depression, anxiety, and HRQOL

Table 1. Patient demographic profile (n=166)

Demographic profile	No.
Mean age (SD) [years]	45.2 (13.5)
Sex (male/female)	79 (47.6%)/87 (52.4%)
Education level	
None	11 (6.6%)
Primary	43 (25.9%)
Secondary	93 (56.0%)
Tertiary	10 (6.0%)
Postgraduate	9 (5.4%)
Marital status	
Single	39 (23.5%)
Married	104 (62.7%)
Separated/widowed	23 (13.9%)
Current work status	
Full-time paid work	40 (24.1%)
Other paid work	10 (6.0%)
Unemployed	40 (24.1%)
Household	30 (18.1%)
Student/retired	24 (14.5%)
Others	22 (13.3%)
Median numeric pain rating score (interquartile range)	6 (2-10)

Table 2. Causes attributed to pain condition

Cause	No.
Work-related injury	57 (34.3%)
Accident (domestic/traffic)	23 (13.9%)
Illness/surgery	33 (19.9%)
Unknown	42 (25.3%)
Others	11 (6.6%)

measures. The model's calibration was assessed by the Hosmer-Lemeshow goodness-of-fit χ^2 test and its predictive accuracy was assessed by the area under the receiver operating characteristics curve. An area of 0.5 indicated no predictive discrimination and an area of 1.0 indicated perfect separation of patients with different outcomes. All data analysis was performed using STATA Statistical software version 8.2 (StataCorp, College Station, Texas, United States). The level of significance was set at a P value of less than 0.05.

Results

Between 1 July 2002 and 28 February 2003, 180 new patients attended the pain management clinics. Data from 166 patients were analysed. Fourteen patients' data were incomplete and excluded from analysis. The mean age of patients was 45.2 years (standard deviation [SD], 13.5) [Table 1]. Most patients were in the working age-group with 85% between the age of 18 and 60 years. There was a similar proportion of each sex (79 males and 87 females). The median numeric

Table 3. Medical Outcomes Survey short-form health survey (SF36) scores compared with local population and a Danish chronic pain population

	Study population Mean (SD*)	HK population norm[22] Mean (SD)	Danish chronic pain patients[9] Mean (SD)
Age (years)	45.2 (13.5)	42.9 (NA†)	58 (NA)
Sex (M/F)	47.6%/52.4%	47.8%/52.2%	35%/65%
SF36 scores			
Physical functioning	46.5 (23.6)	91.8 (12.9)	44 (28)
Role, physical	10.4 (23.7)	82.4 (31.0)	15 (26)
Bodily pain	23.4 (15.0)	83.9 (21.9)	22 (26)
General health	30.5 (17.2)	55.8 (20.2)	35 (18)
Vitality	32.8 (20.3)	60.2 (18.7)	32 (23)
Social functioning	44.5 (27.8)	91.2 (16.6)	48 (32)
Role, emotional	24.1 (37.6)	71.7 (38.4)	27 (18)
Mental health	45.9 (23.9)	72.8 (16.6)	53 (21)

* SD   standard deviation
† NA   not available

pain rating score was 6 (interquartile range [IQR], 2-10). Work-related injury was the cause of chronic pain in 34.3% of patients (Table 2). While 24.1% of all patients were unemployed, 34% were involved in ongoing litigation related to the pain condition. Social welfare benefit was received by 32% for disability or under the comprehensive social security assistance scheme. Some patients received help from other specialists for pain management: 63.5% were under the care of three or more medical specialties or non-medical disciplines. Orthopaedics (41.6% of those who consulted other specialties) was the most commonly consulted specialty. One or more analgesic medications were taken by 71%, and 54.8% were also receiving complimentary alternative medical treatment (traditional Chinese medicine [TCM] in 49.7%).

The HADS score was greater than 7 in 118 (71.1%) patients. This indicated the presence of anxiety or depression. The overall mean (SD) of HADS (A) and HADS (D) was 9.7 (4.9) and 9.7 (4.6), respectively. Clinical anxiety and depressive disorders, as indicated by the HADS anxiety and depression subscales, were present in 66% and 64%, respectively. The HADS anxiety and depression scores were 11 or higher in 47.3% and 43.6% patients, respectively, indicating moderate to severe anxiety and depression. The presence of anxiety and depression were strongly correlated (Pearson correlation coefficient 0.70, P<0.0001).

All SF36 subscale scores were lower than the local population norm for individuals of similar age and sex distribution (Table 3).[22] The score for SF36 mental health subscale showed a strong correlation with that of the HADS subscales (Pearson correlation coefficients = –0.71, P<0.0001 for anxiety subscale

and = –0.60, P<0.0001 for depression subscale). The vitality subscale showed only moderate correlation with HADS subscales (Pearson correlation coefficients ranging from -0.50 to -0.58, P<0.001). The SF36 scores were comparable with those of a similar Danish population.[9]

Patients who were unemployed had higher depression scores (median, 11.0; IQR, 7-14) [P=0.005] than those in paid employment (median, 8.0; IQR, 5-12) or with home duties (median, 8.5; IQR, 6-11). Students or retired individuals had lower physical functioning scores (median, 23; IQR, 15-54) [P=0.004] than those in paid employment (median, 50; IQR, 40-75) or with home duties (median, 45; IQR, 35-61). Marital status was associated with role emotion (P=0.011). Patients who were single had higher role emotion scores (median, 33; IQR, 0-100) than those who were married (median, 0; IQR, 0-33) or separated/widowed (median, 0; IQR, 0-0). Those who received social welfare had a lower physical functioning score (median, 38; IQR, 25-55) than those who did not (median, 50; IQR, 35-65) [z= –2.44, P=0.015].

Logistic regression analysis showed that litigation was more often associated with age, being married, having a work-related injury, and good general health (Table 4). The fit of the model was adequate (Hosmer-Lemeshow goodness-of-fit test, χ^2=4.85, df=8, P=0.77) and highly discriminative (0.89). Social welfare was associated with unemployment and physical functioning (Table 5). Patients who were unemployed or those who had lower physical functioning scores were more likely to receive social welfare. The fit of the model was adequate (Hosmer-Lemeshow goodness-of-fit test, χ^2=9.66, df=8, P=0.29) and moderately discriminative (0.71).

Table 4. Factors associated with litigation[*]

Factor	Odds ratio (95% confidence interval)	P value
Marital status		
Single	1.00	-
Married	6.62 (1.64-26.65)	0.008
Separated/widowed	4.13 (0.67-25.36)	0.126
Age (years)	0.95 (0.90-0.99)	0.02
Work-related injury		
No	1.00	-
Yes	15.63 (5.97-40.92)	<0.001
General health subscale	1.03 (1.00-1.07)	0.04

[*] Adjusted for anxiety, depression, and other health-related quality-of-life subscales

Table 5. Factors associated with social welfare[*]

Factor	Odds ratio (95% confidence interval)	P value
Unemployment		
No	1.00	-
Yes	3.39 (1.49-7.69)	0.004
Physical functioning subscale	0.98 (0.96-1.00)	0.02

[*] Adjusted for anxiety, depression, and other health-related quality-of-life subscales

Discussion

In the Hong Kong public health care system, only a few dedicated chronic pain management services serve a population of 6.8 million, and most operate on a similar referral basis to those in this study. The pain management service of the New Territories East region serves one sixth of the total Hong Kong population and may thus be considered representative of the total chronic pain population in Hong Kong.

The mean (SD) age of our patients was 45.2 (13.5) years, evenly split between male and female. Over 62% of the patients had received secondary or tertiary education, and 6.6% had received no schooling. Full demographic data were not collected, but the available data suggested that this patient population had similar characteristics to the general population of Hong Kong.[23] The median (IQR) numeric pain rating score was 6 (2-10), indicating that patients had significant pain when first assessed at a clinic. In a previous study conducted by the same regional health care service, the median (range) duration of pain was 2.3 (0.08-26.7) years. The most common pain diagnoses were musculoskeletal back pain (46.4%) and neuropathic pain (27.8%).[24]

Different instruments have been used to measure HRQOL: they should assess physical function, psychological and social well-being.[25] The HADS has been used as a psychometric screening tool for anxiety and depression in chronic pain patients.[9] In this study, HADS was selected because of the availability of a Chinese version that has previously been found to be reliable, sensitive, and valid in screening for psychiatric morbidity.[20] The ease and speed of application also ensured patients' acceptance of the assessment tool and cooperation in the survey. The SF36 is a widely used measure of HRQOL in chronic morbidity. The Chinese (HK) version of SF36 was chosen for this study because it has been previously validated[21] and local Chinese population norms were available for comparison[22] with a chronic pain population. Several studies have found that HRQOL is related to medical expenses in working adults and their dependents,[26] hospital and out-patient services utilisation in patients with chronic disease,[27] and health service utilisation.[15]

The HADS data revealed that clinical anxiety or depressive disorders were present in 71% of patients with chronic pain. The presence of anxiety and depression were strongly correlated, and scores were consistent with the corresponding mental subscales of SF36: this suggested that these psychological measures were reliable. The prevalence of clinical anxiety and depression was higher than that in western populations. Anxiety or depression was reported in 58% of a Danish chronic non-malignant pain population,[9] and a similar prevalence of depression was reported in chronic pain patients in United States.[6] In a local HRQOL survey, the authors found that the Hong Kong Chinese population were psychologically more stressed than their western counterparts.[22] They attributed this to intense competition, long working hours, over-crowded living conditions, and unemployment. The greater prevalence of anxiety and depression likely reflects the excessive psychological stress in our patients, especially when the duration of pain was prolonged.

All SF36 subscales scores were lower than the norm of the local Chinese population with similar age and sex distribution[22] indicating serious impairment of HRQOL. The difference in scores ranged from 25.3% to 26.9% for general health and mental health subscales respectively, to 72% for role physical subscale. The large differences in physical functioning and role physical subscales between study patients and the general population indicate significant disability in the study patients. Their SF36 scores were similar to those of a Danish population of chronic pain patients.[9] In another study, Meyer-Rosberg et al[10] reported that chronic neuropathic pain had a significant impact on HRQOL SF36 scores, with physical functioning,

physical role , bodily pain, and emotional role subscales being most affected. In all but one mental dimension, scores were as low as in patients with serious psychological depression. In this study, psychological well-being and quality of life were significantly affected and similar to western patients. This is not surprising because the Hong Kong Chinese population are generally well educated, fairly westernised, and enjoy a high standard of living.

There was also a high rate of unemployment, work-related injury, and social welfare benefit or litigation among our patients. The economic implications of decreased productivity, compensation claims, and need for social welfare are enormous: a recent local report estimated that at least 360 000 sick-days were taken by the working population of Hong Kong for chronic pain during a 1-year period.[2] Considering a median monthly income of HKD10 000 for the working population in Hong Kong,[28] this will cost taxpayers HKD120 million annually in lost productivity. This excludes the costs of health care utilisation, social welfare, and compensation.

The cost of health care utilisation in this study was high: 63% of patients attended three or more medical specialties or allied-health disciplines (such as physiotherapy, occupational therapy, clinical psychology, and medical social work) separately for their pain condition. A more coordinated or integrated management by the different specialties and disciplines may be beneficial to the patient and reduce duplication in health care services. Many patients were taking multiple analgesic preparations, and over half were also receiving complimentary alternative medical treatment, mainly TCM. The popularity of TCM may reflect the unsatisfactory results of conventional western medicine, and the recognised appeal of the holistic nature of TCM treatment. An earlier survey of patients with chronic pain also reported that 19.5% of respondents had sought treatment from a TCM practitioner for pain relief.[2]

Work status was associated with depression and physical functioning scores. Unemployed patients were more likely to have clinical depression, while those who were students or had retired had lower physical functioning. Depression has been shown to predict return-to-work status in chronic pain patients[29] and worsen the effect of pain on social and recreational activities.[30] Chronic pain patients who are depressed are more likely to be unemployed and vice versa. An employed individual may have greater self-control of life and be less likely to suffer depression. During this

study the local general unemployment rate was 7%: this may have affected the results. Students and retired patients had lower physical functioning scores compared with those who had paid work or home duties. Of the 14.5% of patients who were studying or retired, most were retired elderly patients who were more likely to have associated physical disability.

Patients who were single were more likely to have higher role emotion than those who were married or separated, while those who received social welfare benefit were more likely to have lower physical functioning than those who did not. The possible lack of social support in single patients may explain the greater role emotion score: they were younger (mean age, 34.5 years) than the married (49.4 years) or separated (44.5 years) patients. Separated or divorced patients may receive social support from their children, although having young children may also exacerbate psychological stresses. This observation could not be confirmed due to a lack of relevant data. Patients who received social welfare were unemployed or had physical disability. These patients were likely to experience greater psychosocial stresses that may contribute to a perceived decreased physical functioning.

In a recent report, litigation in chronic pain was strongly associated with higher levels of pain-related disability, even after taking into account other factors associated with poor functional outcome.[31] An earlier study also found that litigation increased functional disability and caused greater psychological distress in patients who were working.[32] In this study, patients who were married and those who had pain as a result of a work-related injury were 6.62 (95% confidence interval [CI], 1.64-26.65) and 15.63 (95% CI, 5.97-40.92) times more likely to be involved in litigation. Married patients, especially those with children, would have a greater financial burden and may be more likely affected by litigation. In addition, 37.5% of married patients in this study had a work-related injury: this may explain the high litigation rate. In work-related injury, litigation was commonly related to claims for compensation. Nonetheless, these results may not be precise as indicated by the wide CIs related to a relatively small sample size. Younger patients and those with higher SF36 general health subscale scores were also statistically more likely to be involved in litigation, but the odds ratios suggested that this may not be of clinical importance.

Those who were unemployed were 3.4 (95% CI, 1.49-7.69) times more likely to receive social welfare benefit. Although the SF36 physical functioning

subscale score affected the likelihood of social welfare statistically, it may not be of clinical importance. Chronic pain conditions are like other chronic medical conditions, for example, asthma. They may be invisible to the onlooker, but exacerbations will significantly affect the individual's function and mood and consequently quality of life. Complicated cases of chronic pain may benefit from a multidisciplinary and multimodal treatment approach.[33]

Conclusion

There is a high prevalence of anxiety, depression, and severe impairment in the HRQOL of Hong Kong Chinese patients with chronic non-cancer pain. The impact of chronic pain on quality of life appears to be a cross-cultural phenomenon, because our results were consistent with the findings in a western population. Specific factors affected the HRQOL scores, likelihood of litigation, and social benefit. This knowledge may help optimise treatment outcome in local Chinese chronic pain patients.

Acknowledgements

References

1. Verhaak PF, Kerssens JJ, Dekker J, Sorbi MJ, Bensing JM. Prevalence of chronic benign pain disorder among adults: a review of the literature. Pain 1998;77:231-9.
2. Ng KF, Tsui SL, Chan WS. Prevalence of common chronic pain in Hong Kong adults. Clin J Pain 2002;18:275-81.
3. Borghouts JA, Koes BW, Vondeling H, Bouter LM. Cost-of-illness of neck pain in The Netherlands in 1996. Pain 1999;80:629-36.
4. Aronoff GM, Evans WO, Enders PL. A review of follow-up studies of multidisciplinary pain units. Pain 1983;16:1-11.
5. Schipper H. Guidelines and caveats for quality of life measurement in clinical practice and research. Oncology (Huntingt) 1990;4:51-7,70.
6. Romano JM, Turner JA. Chronic pain and depression: does the evidence support a relationship? Psychol Bull 1985;97:18-34.
7. Haley WE, Turner JA, Romano JM. Depression in chronic pain patients: relation to pain, activity, and sex differences. Pain 1985;23:337-43.
8. Rudy TE, Kerns RD, Turk DC. Chronic pain and depression: toward a cognitive-behavioral mediation model. Pain 1988;35:129-40.
9. Becker N, Bondegaard Thomsen A, Olsen AK, Sjogren P, Bech P, Eriksen J. Pain epidemiology and health related quality of life in chronic non-malignant pain patients referred to a Danish multidisciplinary pain center. Pain 1997;73:393-400.
10. Meyer-Rosberg K, Kvarnström A, Kinnman E, Gordh T, Nordfors LO, Kristofferson A. Peripheral neuropathic pain—a multidimensional burden for patients. Eur J Pain 2001;5:379-89.
11. Fishbain DA, Cutler R, Rosomoff HL, Rosomoff RS. Chronic pain-associated depression: antecedent or consequence of chronic pain? A review. Clin J Pain 1997;13:116-37.
12. Turk DC, Okifuji A, Scharff L. Chronic pain and depression: role of perceived impact and perceived control in different age cohorts. Pain 1995;61:93-101.
13. Kai-hoi Sze F, Wong E, Lo R, Woo J. Do pain and disability differ in depressed cancer patients? Palliat Med 2000;14:11-7.
14. Wang SJ, Liu HC, Fuh JL, Liu CY, Wang PN, Lu SR. Comorbidity of headaches and depression in the elderly. Pain 1999;82:239-43.
15. Lam CL, Fong DY, Lauder IJ, Lam TP. The effect of health-related quality of life (HRQOL) on health service utilisation of a Chinese population. Soc Sci Med 2002;55:1635-46.
16. Zigmond AS, Snaith RP. The hospital anxiety and depression scale. Acta Psychiatr Scand 1983;67:361-70.
17. Stewart AL, Hays RD, Ware JE Jr. The MOS short-form general health survey. Reliability and validity in a patient population. Med Care 1988;26:724-35.
18. Garratt AM, Ruta DA, Abdalla MI, Buckingham JK, Russel IT. The SF36 health survey questionnaire: an outcome measure suitable for routine use within the NHS? BMJ 1993;306:1440-4.
19. Lyons RA, Lo SV, Littlepage BN. Comparative health status of patients with 11 common illnesses in Wales. J Epidemiol Community Health 1994;48:388-90.
20. Leung CM, Wing YK, Kwong PK, Lo A, Shum K. Validation of the Chinese-Cantonese version of the hospital anxiety and depression scale and comparison with the Hamilton Rating Scale of Depression. Acta Psychiatr Scand 1999;100:456-61.
21. Lam CL, Gandek B, Ren XS, Chan MS. Tests of scaling assumptions and construct validity of the Chinese (HK) version of the SF-36 Health Survey. J Clin Epidemiol 1998;51:1139-47.
22. Lam CL, Lauder IJ, Lam TP, Gandek B. Population based norming of the Chinese (HK) version of the SF-36 Health Survey. Hong Kong Pract 1999;21:460-70.
23. Hong Kong in Figures. 2004 ed. HKSAR Government: Census & Statistics Department; 2004.
24. Chen PP, Chen J, Gin T, et al. Out-patient chronic pain service in Hong Kong: prospective study. Hong Kong Med J 2004;10:150-5.
25. Bech P. Health related quality of life rating scales. In: Bech P, editor. Rating sales for psychopathology, health status and quality of life. Berlin: Springer-Verlag; 1993:395-424.
26. Hornbrook MC, Goodman MJ. Assessing relative health plan risk with the RAND-36 health survey. Inquiry 1995;32:56-74.
27. Nelson EC, McHorney CA, Manning WG Jr, et al. A longitudinal study of hospitalization rates for patients with chronic disease: results from the Medical Outcomes Study. Health Serv Res 1998;32:759-74.
28. Quarterly report on General Household Survey, April to June 2000. HKSAR Government: Census & Statistics Department; 2001.
29. Gallagher RM, Rauh V, Haugh LD, et al. Determinants of return-to-work among low back pain patients. Pain 1989;39:55-67.
30. Doan BD, Wadden NP. Relationships between depressive symptoms and descriptions of chronic pain. Pain 1989;36:75-84.
31. Blyth FM, March LM, Nicholas MK, Cousins MJ. Chronic pain, work performance and litigation. Pain 2003;103:41-7.
32. Tait RC, Chibnall JT, Richardson WD. Litigation and employment status: effects on patients with chronic pain. Pain 1990;43:37-46.
33. Chen PP, Wong CM, Chu MC. Chronic pain management: a paradigm change. Hong Kong Pract 2004;26:277-84.