Chronic pain in older people

Francis Tat-yam, KUNG
Professional Diploma in Occupational Therapy (Hong Kong Polytechnic)
Master of Health Sciences (La Trobe)

Thesis submitted in total fulfillment of the requirements of
the degree of Doctor of Philosophy

April 2001

Department of Medicine
The University of Melbourne
ABSTRACT

Despite the expansion of research into chronic nonmalignant pain, a majority of reported studies are based on patient populations of specialised pain management clinics, which may not adequately represent older people with chronic nonmalignant pain in the general community. Therefore, the overall aim of the present thesis was to fill some gaps in this knowledge base.

The findings of the present thesis support the notion that older people who attend multidisciplinary pain management centres are probably not representative of those with pain who live in the general community but do not attend specialised treatment centres. Indeed a conceptual framework developed from the findings suggest that less than 3 percent of a random community sample of older people with chronic pain share the profile of those who attend a multidisciplinary pain management centre. The majority (86 percent) of the community sample were found to have mild chronic pain that can be adequately managed in the community. However, about 11 percent of the community sample have moderate chronic pain, and it is probable that additional community-based pain management services can improve the management of their pain.

Development of instruments to measure the perceived helpfulness and use of pain management strategies by community-dwelling older people with chronic pain is another area that has not received adequate attention. A preliminary survey questionnaire was developed to measure the use and perceived helpfulness of pain management strategies in community dwelling older people. The findings have provided new insight from the user's perspective regarding the relative effectiveness of different pain management strategies, and highlighted the potential clinical application of strategies that are less commonly used, such as TENS (transcutaneous electrical nerve stimulation), and relaxation techniques that are beneficial for specific subgroups of older people with chronic pain.
The evaluation of the efficacy of a community-based intervention program that provides free choice of intervention for improving outcomes for older people with chronic pain showed that the program was successful in reducing pain and improving level of physical activity for those who completed the program when they were compared with matched subjects who did not participate. The findings also suggest that an educational seminar can have a positive impact that empower participants to make a more informed choice regarding interventions for managing pain. However, the long-term effect of the program has not been established. Therefore, further research will be needed to evaluate whether this approach is a viable alternative clinical option for effective, accessible, and low cost pain management for the general community of older people with chronic pain.

A pain management service model was developed based on a synthesis of the findings. The model was based on a targeted approach that focuses on community-based interventions designed to improve access and outcomes for the majority of community-dwelling older people with chronic nonmalignant pain who do not use specialised pain management services.

Overall, the findings of the present thesis have enhanced our understanding of the management of chronic nonmalignant pain in community-dwelling older people, which has important implications for the development of services, and has generated hypothesis for future research that may contribute to improve outcomes for older people with chronic nonmalignant pain.
DECLARATION

This is to certify that

(1) the thesis comprises only my original work,

(2) due acknowledgement has been made in the text to all other material used,

(3) the thesis is less than 100,000 words in length, exclusive of tables, maps, bibliographies, appendices and footnotes,

(4) approval from Human Research (Ethics) Committee, North West Hospital, Melbourne, Australia was sought and granted prior to implementation of the present studies,

(5) written informed consent obtained from all participants involved in the studies, and

(6) the thesis has not been submitted for any other academic degree.

…………………………………….
Francis Tat -yan, Kung
ACKNOWLEDGMENTS

I would like to express my sincere thanks to my supervisor, Dr Stephen Gibson, and Professor Robert Helme, of the National Ageing Research Institute for their guidance and advice.

The support from the following organisations is also gratefully acknowledged:

The Victorian Health Promotion Foundation, which funded the evaluation of a community-based pain management program and development of a pain management strategies survey questionnaire.

The Pain Management Centre, jointly operated by The National Ageing Research Institute, and the Melbourne Extended Care and Rehabilitation Service, Parkville, which offered access for data collection and use of existing data.

The Lincoln Gerontology Centre, La Trobe University, Bundoora and the National Ageing Research Institute for access to data of the Health Status of Older Persons Project.

The Arthritis Foundation of Victoria, Caulfield community care centre, Broadmeadows community health centre, Maroondah social and community health centre, and Sunbury community health centre for assistance in the implementation of the community-based intervention program.

Finally, thanks to my wife, Phyllis for her lovingly nuturing of my soul, and my two children, Stephen and Matthew who provide the balance between work and leisure throughout the study.
LIST OF PUBLICATIONS

Referred journals and proceedings


Report


Abstracts


# TABLE OF CONTENTS

ABSTRACT ii  
DECLARATION iv  
ACKNOWLEDGEMENTS v  
LIST OF PUBLICATIONS vi  
TABLE OF CONTENTS viii  
LIST OF TABLES xiii  
LIST OF FIGURES xvi

## CHAPTER ONE LITERATURE REVIEW

1.1 NATURE OF PAIN 1  
1.2 CLINICAL PAIN STATES 3  
  1.2.1 Acute and Chronic Pain 3  
  1.2.2 Cancer Pain and Chronic Nonmalignant Pain 4  
1.3 CHRONIC NONMALIGNANT PAIN 5  
  1.3.1 Time course of chronic nonmalignant pain 5  
  1.3.2 Impact of chronic nonmalignant pain 6  
  1.3.3 Psychosocial factors that contribute to adjustment to chronic pain 9  
  1.3.4 Clinical presentation of chronic pain in young and older adults 14  
1.4 PREVALENCE OF PAIN IN OLDER PEOPLE 16  
1.5 ASSESSMENT OF THE PAIN PATIENT 21  
  1.5.1 Pain 21  
  1.5.2 Activity 25  
  1.5.3 Mood 25  
  1.5.4 General psychosocial / quality of life measures 26  
  1.5.5 Pain attitudes and beliefs 27  
  1.5.6 Summary 30  
1.6 MANAGEMENT OF CHRONIC NONMALIGNANT PAIN 32  
  1.6.1 Approaches for managing chronic nonmalignant pain 32  
  1.6.2 Strategies for managing chronic nonmalignant pain 35  
  1.6.3 Pharmacological strategies for management of chronic nonmalignant pain 35  
  1.6.4 Non-pharmacological strategies for management of chronic nonmalignant pain 40  
1.7 EVALUATION OF PAIN MANAGEMENT STRATEGIES 46  
1.8 PAIN MANAGEMENT PROGRAMS 49  
  1.8.1 Multidisciplinary pain management programs 49  
  1.8.2 Multidisciplinary pain management programs for older people 50  
  1.8.3 Inpatient versus outpatient pain management programs 51  
  1.8.4 Interpretation of findings from pain clinic studies 53  
  1.8.5 Community-based pain management programs 55

viii
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.8.6 Future directions for management of chronic nonmalignant pain</td>
<td>57</td>
</tr>
<tr>
<td>1.9 SERVICES FOR OLDER PEOPLE WITH CHRONIC PAIN</td>
<td>60</td>
</tr>
<tr>
<td>1.10 OLDER PEOPLE WITH CHRONIC PAIN WHO DO NOT ATTEND PAIN MANAGEMENT CENTRES</td>
<td>62</td>
</tr>
<tr>
<td>1.11 SUMMARY AND RATIONALE FOR THE PRESENT STUDIES</td>
<td>63</td>
</tr>
<tr>
<td>1.12 AIM AND OBJECTIVES OF THE PRESENT THESIS</td>
<td>65</td>
</tr>
<tr>
<td>CHAPTER TWO OLDER PEOPLE WITH CHRONIC PAIN: A COMPARISON OF PATIENTS REFERRED TO A PAIN CLINIC WITH A NON-REFERRED GROUP SEEKING INTERVENTION</td>
<td></td>
</tr>
<tr>
<td>2.1 INTRODUCTION</td>
<td>67</td>
</tr>
<tr>
<td>2.2 AIM</td>
<td>69</td>
</tr>
<tr>
<td>2.3 METHODS</td>
<td>69</td>
</tr>
<tr>
<td>2.3.1 Participants</td>
<td>69</td>
</tr>
<tr>
<td>2.3.2 Data collection</td>
<td>69</td>
</tr>
<tr>
<td>2.3.3 Variables examined and measures used</td>
<td>70</td>
</tr>
<tr>
<td>2.3.4 Data analysis</td>
<td>71</td>
</tr>
<tr>
<td>2.4 RESULTS</td>
<td>72</td>
</tr>
<tr>
<td>2.5 DISCUSSION</td>
<td>77</td>
</tr>
<tr>
<td>2.5.1 Limitations of the present study</td>
<td>82</td>
</tr>
<tr>
<td>2.5.2 Further research</td>
<td>82</td>
</tr>
<tr>
<td>2.6 SUMMARY</td>
<td>82</td>
</tr>
<tr>
<td>CHAPTER THREE COMMUNITY-DWELLING OLDER PEOPLE WITH CHRONIC PAIN WHO SHARE A SIMILAR PROFILE TO THOSE WHO ATTEND A PAIN MANAGEMENT CENTRE</td>
<td></td>
</tr>
<tr>
<td>3.1 INTRODUCTION</td>
<td>84</td>
</tr>
<tr>
<td>3.2 AIM</td>
<td>85</td>
</tr>
<tr>
<td>3.3 METHODS</td>
<td>85</td>
</tr>
<tr>
<td>3.3.1 Part One – Comparison between pain clinic patients and a randomised community sample</td>
<td>85</td>
</tr>
<tr>
<td>3.3.2 Part Two - Comparison between randomised and self selected community samples</td>
<td>89</td>
</tr>
<tr>
<td>3.4 RESULTS</td>
<td>90</td>
</tr>
<tr>
<td>3.4.1 Part One - Comparison of pain clinic and randomised community samples</td>
<td>90</td>
</tr>
<tr>
<td>3.4.2 Part Two - Comparison of randomised and self selected community samples</td>
<td>97</td>
</tr>
<tr>
<td>3.4.3 Integration of findings</td>
<td>98</td>
</tr>
<tr>
<td>3.5 DISCUSSION</td>
<td>100</td>
</tr>
</tbody>
</table>
5.3.3 Variables related to the characteristics of the study groups 159
5.3.4 Data analyses 160
5.4 RESULTS 160
5.4.1 Participants 160
5.4.2 Analgesic and psychotropic medication use between pain clinic and community sample with chronic pain 162
5.4.3 Factors associated with analgesic and psychotropic medication use in the community group with chronic pain 163
5.5 DISCUSSION 166
5.5.1 Limitations of the present study 169
5.5.2 Further research 169
5.6 SUMMARY 169

PART TWO USAGE AND PERCEIVED HELPFULNESS OF PAIN MANAGEMENT STRATEGIES BY OLDER PEOPLE WITH CHRONIC NONMALIGNANT PAIN 170
5.7 AIMS 170
5.8 METHODS 171
5.8.1 Participants 171
5.8.2 Data collection 171
5.9 RESULTS 172
5.9.1 Patterns of use between community and pain clinic samples 172
5.9.2 Use prevalence and perceived helpfulness of health treatments 174
5.9.3 Use prevalence and perceived helpfulness of community and support services 179
5.9.4 Use prevalence and perceived helpfulness of self help methods 184
5.10 DISCUSSION 189
5.10.1 Limitations of present study 194
5.10.2 Further research 194
5.11 SUMMARY 195

CHAPTER SIX A COMMUNITY-BASED PAIN MANAGEMENT PROGRAM THAT PROVIDES FREE CHOICE OF INTERVENTIONS FOR OLDER PEOPLE
6.1 INTRODUCTION 196
6.2 AIM 199
6.3 METHODS 200
6.3.1 Recruitment of participants 200
6.3.2 The community-based intervention program 201
6.3.3 The education seminar 201
6.3.4 Interventions 202
6.3.5 Outcome measures 202
6.3.6 Comparison groups
6.3.7 Research design
6.3.8 Statistical analyses

6.4 RESULTS

6.4.1 Baseline characteristics of participants
6.4.2 Impact of the educational seminar on selection of interventions
6.4.3 Interventions selected by participants after attending the educational seminar
6.4.4 Locus of control and interventions selected
6.4.5 Characteristics of participants who withdrew from the program
6.4.6 Outcomes of the intervention program
6.4.7 Comparing the outcomes of the present program with a sample of older people who attended a multidisciplinary pain management centre
6.4.8 Comparing the effects of the self management course and allied health treatments
6.4.9 Locus of control orientation and post intervention outcomes
6.4.10 Maintenance of benefits of interventions over a six-month follow-up period

6.5 DISCUSSION

6.5.1 Clinical significance of the findings
6.5.2 Limitations of the present study
6.5.3 Further research

6.6 SUMMARY

CHAPTER SEVEN DISCUSSION AND CONCLUSION

7.1 GAPS IN CURRENT KNOWLEDGE
7.2 A CONCEPTUAL FRAMEWORK OF OLDER PEOPLE WITH CHRONIC NONMALIGNANT PAIN
7.3 USE OF PAIN MANAGEMENT STRATEGIES
7.4 A COMMUNITY-BASED PAIN MANAGEMENT PROGRAM FOR THOSE WITH MODERATE CHRONIC PAIN
7.5 IMPLICATIONS - A PAIN MANAGEMENT SERVICE MODEL
7.6 DIRECTIONS FOR FUTURE RESEARCH
7.7 CONCLUSION

BIBLIOGRAPHY
LIST OF TABLES

Table 1.1      Summary of epidemiological studies of pain prevalence in community-dwelling older people         19
Table 1.2      Common instruments used in the assessment of pain in older people    31
Table 2.1      Comparison of sociodemographic and pain related variables between the pain clinic group and a self selected community group of older people with chronic pain    73
Table 2.2      Comparison between the pain clinic group and a self selected community group of older people with chronic pain    75
Table 2.3      Results of the discriminant function analysis    76
Table 2.4      Classification of results from the discriminant function analysis    76
Table 3.1      Comparison of selected variables between the pain clinic and randomised community samples    91
Table 3.2      Results of the logistic regression analysis (randomised community and pain clinic samples)    95
Table 3.3      Variables associated with older people who attended a pain management clinic    95
Table 3.4      Classification table of observed and predicted groups – randomised community and pain clinic samples    96
Table 3.5      Results of the logistic regression analysis (randomised and self selected community samples)    97
Table 3.6      Predicting variable associated with older people who responded to a structured community-based pain management program    97
Table 3.7      Classification table of observed and predicted groups – randomised and self selected community samples    98
Table 3.8      Characteristics of subgroups of older people with chronic pain    99
Table 3.9      Integration of findings – multivariate analyses    99
Table 4.1      Instructions for the expert panel - Content validation of a pain management strategies survey questionnaire    118
Table 4.2      Strategies used by focus group participants for managing pain    121
Table 4.3      Proportion of experts whose endorsement is required in order to establish content validity beyond the 0.05 level of significance (Lynn 1986)    131
Table 4.4      Pain Management Strategies Survey Questionnaire    133
Table 4.5      Use and perceived helpfulness of pain management strategies by older people with chronic nonmalignant pain (n=230)    136
Table 4.6      Reliability of the survey questionnaire    138
Table 4.7 Results of the preliminary confirmatory factor analysis
Table 4.8 Factor loadings from the pattern matrix of the preliminary confirmatory factor analysis
Table 4.9 Comparison of pain management strategy use patterns between self help group and non self help group
Table 4.10 Results of the exploratory factor analysis based on 26 commonly used pain management strategies
Table 4.11 Rotated factor loadings and dimensions identified in the pain management strategies questionnaire
Table 5.1 Characteristics of the community and pain clinic samples
Table 5.2 Comparison of analgesic and psychotropic medication use between older people with chronic pain, and those who were referred to a pain management centre
Table 5.3 Univariate analyses of analgesic and psychotropic medication use and selected variables in a community sample of older people with chronic pain (n=193)
Table 5.4 Comparison of characteristics of the community and pain clinic samples
Table 5.5 Comparison of use patterns of pain management strategies between community and pain clinic samples
Table 5.6 Use and perceived helpfulness of health treatments by older people with chronic pain (n=124)
Table 5.7 Comparison of mean helpfulness ratings of 13 health treatments
Table 5.8 Relationships of perceived helpfulness ratings of health treatments with selected variables
Table 5.9 Use and perceived helpfulness of community and support services by older people with chronic pain (n=124)
Table 5.10 Comparison of mean helpfulness ratings of 11 community and support services
Table 5.11 Relationships of perceived helpfulness ratings of community and support services with selected variables
Table 5.12 Use and perceived helpfulness of self help methods by older people (n=122)
Table 5.13 Comparison of mean helpfulness ratings of 11 self help methods
Table 5.14 Perceived helpfulness of self help methods and pain related characteristics
Table 6.1 Comparison of characteristics of the treated and untreated groups
| Table 6.2 | Pain management strategies used by the treated group in the six-month period prior to taking part in the present program (n=53) |
| Table 6.3 | Selection of intervention for managing pain by participants before and after attending the educational seminar |
| Table 6.4 | Significance testing of distribution of interventions selected before and after attending educational seminar |
| Table 6.5 | Interventions selected by participants after attending the educational seminar |
| Table 6.6 | Internal locus of control and selection of interventions |
| Table 6.7 | Comparison between participants who completed the program and those who withdrew after attending the education seminar |
| Table 6.8 | Outcome measures from baseline and post intervention measurements between treated and untreated groups |
| Table 6.9 | Comparison between the treated group with a pain clinic sample on pain rating from baseline to post intervention |
| Table 6.10 | Outcome measures from baseline to post intervention between those who selected allied health treatments and those who attended a self management course |
| Table 6.11 | Outcome measures from baseline to post intervention between treated subgroups with high and low score on pain locus of control internality factor |
| Table 6.12 | Outcome measures from baseline to follow up for the treated and untreated groups |
## LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 2.1</td>
<td>Histogram of discriminant scores for the two study groups</td>
<td>77</td>
</tr>
<tr>
<td>Figure 3.1</td>
<td>Characteristics of community-dwelling older people with chronic nonmalignant pain (n=193)</td>
<td>92</td>
</tr>
<tr>
<td>Figure 3.2</td>
<td>Characteristics of older people who attended a multidisciplinary pain management centre (n=150)</td>
<td>93</td>
</tr>
<tr>
<td>Figure 3.3</td>
<td>Histogram of estimated probability of the community group that may have a profile similar to the pain clinic group</td>
<td>96</td>
</tr>
<tr>
<td>Figure 6.1</td>
<td>Flowchart showing recruitment and progress of participants through the intervention program</td>
<td>206</td>
</tr>
<tr>
<td>Figure 7.1</td>
<td>A conceptual framework of community-dwelling older people with chronic nonmalignant pain</td>
<td>245</td>
</tr>
<tr>
<td>Figure 7.2</td>
<td>A pain management service model for community-dwelling older people with chronic nonmalignant pain</td>
<td>252</td>
</tr>
</tbody>
</table>
Author/s:
Kung, Francis Tat-yan

Title:
Chronic pain in older people

Date:
2001-04

Citation:

Publication Status:
Unpublished

Persistent Link:
http://hdl.handle.net/11343/39436

File Description:
Intro.

Terms and Conditions:
Terms and Conditions: Copyright in works deposited in Minerva Access is retained by the copyright owner. The work may not be altered without permission from the copyright owner. Readers may only download, print and save electronic copies of whole works for their own personal non-commercial use. Any use that exceeds these limits requires permission from the copyright owner. Attribution is essential when quoting or paraphrasing from these works.