Behavioural and Cognitive Psychotherapy, 2009, 37, 221–226
Printed in the United Kingdom doi:10.1017/S1352465809005177

A Controlled Investigation of a Cognitive Behavioural Pain Management Program for Older Adults

Sheryl M. Green

McMaster University, Canada

Thomas Hadjistavropoulos, Heather Hadjistavropoulos, Ronald Martin and Donald Sharpe

University of Regina, Canada

Background: Although psychosocial treatments for pain have been found to be effective in reducing self-reported pain, physician visits, and in improving mood, the research has largely focused on younger persons. As such, there is a paucity of related studies involving older adults. **Method:** We implemented and evaluated a 10-session psychosocial (i.e. cognitive behavioural orientation) pain management program that was specifically designed for older adults. The intervention was delivered either in the participants' homes or in bookable rooms in seniors' residence buildings. Ninety-five community dwelling seniors with at least one chronic pain condition were assigned to either a treatment or a wait-list control condition. An assessment battery was administered to treatment participants immediately before the program started, immediately post-treatment, and 3-months post-treatment. Comparable data were obtained from control group participants, although 3-month follow-up data were not available for the control group. Outcome variables included pain intensity, coping strategy usage, pain beliefs/appraisals, and perceived life stressors. **Results:** Although decreases in pain intensity were observed in both the treatment and wait-list control groups, the intervention was found to result in fewer maladaptive beliefs about pain and greater use of relaxation, which is considered to be an adaptive coping strategy. **Conclusions:** Although some treatment benefits were identified (e.g. change in pain-related beliefs), future research should test the effectiveness of a cognitive behavioural treatment program tailored for seniors with participants who are experiencing higher pain intensities than those reported by our sample (i.e. those who experience a higher level of pain at baseline may represent a more suitable sample for assessing the effectiveness of our intervention in reducing pain intensity).

Keywords: Pain, old age problems, CBT.

Introduction

Treatments for persistent pain that have a cognitive behavioural orientation have been found to be effective in reducing subjective pain levels, health care costs, and depression among

Reprint requests to Thomas Hadjistavropoulos, Department of Psychology, University of Regina, Regina, SK S4S 0A2, Canada. E-mail: hadjistt@uregina.ca An extended version is also available online in the table of contents for this issue: http://journals.cambridge.org/jid_BCP

younger adults (see Hadjistavropoulos and de C. Williams, 2004 for a review). Research with older persons, however, is more limited. Investigations of psychosocial treatments specifically focusing on older adults are important to conduct as the findings of studies involving younger persons would not necessarily generalize to the context of the older adult. For example, there are specific myths (e.g. Martin, Williams, Hadjistavropoulos, Hadjistavropoulos and MacLean, 2005) relating to pain among older adults (e.g. pain is a natural consequence of growing old and must be endured, opioids are never appropriate for seniors) that need to be addressed when working with older persons. Moreover, the type of psychoeducational information provided as part of treatment (including information about medication usage and exercise) needs to be tailored to the context of the older adult.

The results of the small number of investigations of older adults in this area have been mixed. According to Waters, Woodward and Keefe (2005), some of the studies were uncontrolled while others led to positive results with respect to some outcomes such as disability, but not others (e.g. pain beliefs, mood). For example, researchers found that cognitive behavioural group treatment led to positive results with respect to outcomes such as pain-related disability (e.g. Cook, 1998). Other controlled group treatment research (Ersek, Turner, McCurry, Gibbons and Kraybill, 2003) led to positive results with respect to pain intensity and physical role functioning, but not with respect to pain-related beliefs, pain-related interference or mood.

Reports of past studies did not indicate any specific treatment adaptations for older adults. Examination of a treatment program that is specifically tailored to older persons would allow for a comparison of outcomes with those of treatment studies that did not include such adaptations. Our intent was to test a structured psychosocial treatment program with a cognitive behavioural orientation that was specifically adapted to the context of seniors. We hypothesized that participants in the treatment group would experience more positive outcomes in terms of pain intensity, coping, pain beliefs, and perceived life stressors than participants in a wait-list control group.

Method

Participants

Our final sample consisted of a total of 46 experimental and 49 wait-list control participants who suffered primarily from musculoskeletal pain problems. Power analyses suggested that this sample size exceeds the minimum required to identify medium size hypothesized interaction effects. The average duration of pain was 13.4 years ($SD = 13.4$). After ethics clearance for this research was obtained from our academic institution, participants were recruited through posted announcements and short information presentations in health care facilities, seniors' community residences, other community organizations, and the local media.

Design and procedure and measures

Participants were assigned to either the treatment group or the waitlist group in alternating order. Supervision was provided for therapists by a registered clinical psychologist. Sessions were offered at convenient locations (e.g. bookable rooms in seniors' residences or at the participants' homes).

Participants in the treatment condition took part in an individual 10-week pain management program with a cognitive behavioural orientation. The program involved weekly 60-minute sessions (eight of the weekly sessions were individual sessions with a psychological therapist, one was a group session with a physical therapist, and one was group educational session with a pharmacist). The treatment, which was specifically customized to meet the needs of older adults with pain, was standardized according to an intervenor's manual that described the goals and targeted content for each session. Specific adaptations to meet the needs of seniors, for example, included discussion of issues relating to the relationship between pain and old age, discussion of stressors that primarily affect older adults (e.g. widowhood), discussion of specific physical exercises tailored for seniors, and emphasis on educational information that pertains primarily to older persons (e.g. pain conditions that show increased prevalence with advancing age). The program also included training in relaxation (which was practised and discussed during the sessions) and participants were given relaxation tapes to practise on their own.

The following outcome measures were administered to treatment group participants at baseline, immediately after the last treatment session for the treatment group and again 3-months following treatment: a) *Geriatric Pain Measure* (GPM; Ferrell, Stein and Beck, 2000); b) *Pain Severity Subscale of the Multidimensional Pain Inventory-Section I* (MPI; Kerns, Turk and Rudy, 1985); c) The *Modified Pain Beliefs Questionnaire* (PBQ; Edwards, Pearce, Turner-Stokes and Jones, 1992; Gagliese and Melzack, 1997); d) *Shortened Daily Hassles Scale* (SDHS; Kanner, Coyne, Schaefer and Lazarus 1981); e) *The Chronic Pain Coping Inventory* (CPCI; Jensen, Turner, Romano and Lawler, 1995). The wait-list control participants were administered the same battery of questionnaires at baseline and again 10 weeks following their baseline measure. However, 3-month follow-up data were not collected from wait-list participants because most of them indicated that they were unable to wait for this long until participating in the treatment.

Results

No differences were revealed between participants in the experimental and wait-list control conditions on education or sex. However, there was a difference in age between experimental (72.3 years, $SD = 8.0$) and waitlist controls (77.6 years, $SD = 9.1$), $t\,(93) = 2.98$, $p < .01$, and age was also correlated with some of our outcome variables. As such, we utilized age as a covariate in the analyses involving these variables but the inclusion of the covariate did not change the reported results. Therefore, we are reporting these results without a covariate. We are only reporting tests here that pertain to the hypotheses and led to statistically significant results.[1] All of variables that were tested – leading to non significant results in most cases – appear on Table 1. The identified hypothesized effects were related to pain beliefs and use of coping strategies.

[1]Although we did not identify statistically significant hypothesized group by time interactions with respect to pain levels, we note that there was a statistically significant overall reduction in pain levels for both groups as measured by three of the GPM subscales $Fs > 14$, $ps < .01$.

https://doi.org/10.1017/S1352465809005177 Published online by Cambridge University Press

Table 1. Means and standard deviations of treatment and waitlist control participants on all measures at baseline, immediately post-treatment, and 3 months post-treatment

	Treatment			Waitlist control	
Measures	Baseline	Immediately post treatment	Three months post treatment	Baseline	Immediately post treatment
Geriatric Pain Measure-Pain Intensity	14.56 (5.03)	11.74 (6.14)	12.46 (5.90)	14.30 (5.19)	12.30 (6.24)
Geriatric Pain Measure-Pain Strenuous Activities	2.36 (.92)	2.30 (1.04)	2.43 (1.01)	2.52 (.81)	2.49 (.90)
Geriatric Pain Measure-Pain Other Activities	2.05 (1.34)	1.57 (1.58)	1.61 (1.49)	2.33 (1.46)	1.64 (1.57)
Geriatric Pain Measure-Disengagement	4.89 (2.10)	3.67 (2.31)	3.53 (2.59)	4.63 (2.11)	4.02 (2.35)
Geriatric Pain Measure-Ambulation	1.75 (1.40)	1.70 (1.54)	1.50 (1.44)	1.94 (1.48)	1.74 (1.51)
Pain Beliefs-Organic*	3.90 (.61)	3.41 (.66)	3.47 (.80)	3.84 (.72)	3.86 (.69)
Pain Beliefs-Psychological	3.95 (.66)	3.85 (.56)	3.83 (.54)	4.15 (.67)	4.03 (.67)
Pain Beliefs-Old Age	3.03 (.92)	2.75 (.74)	2.78 (.84)	3.57 (.98)	3.34 (.85)
Chronic Pain Coping Inventory-Guarding	3.20 (1.66)	2.50 (1.62)	2.94 (1.61)	3.21 (1.57)	2.95 (1.75)
Chronic Pain Coping Inventory-Resting	3.90 (1.90)	3.71 (1.61)	3.47 (1.47)	3.99 (1.70)	3.30 (1.71)
Chronic Pain Coping Inventory-Assisting	1.95 (2.41)	2.12 (2.33)	1.99 (2.27)	2.03 (1.85)	1.73 (1.86)
Chronic Pain Coping* Inventory-Relaxation	2.00 (1.19)	2.86 (1.40)	2.94 (1.40)	2.22 (1.31)	2.07 (1.13)
Chronic Pain Coping Inventory-Task Persistence	4.84 (1.91)	3.65 (1.87)	4.07 (2.16)	4.79 (1.85)	4.31 (2.25)
Chronic Pain Coping Inventory-Seek Social Support	2.36 (1.51)	2.59 (1.52)	2.60 (1.59)	2.89 (1.59)	2.64 (1.64)
Chronic Pain Coping Inventory-Exercise/Stretch	2.85 (1.84)	3.65 (2.09)	3.57 (1.96)	2.57 (1.93)	2.79 (2.02)
Chronic Pain Coping Inventory-Coping Statements	3.50 (2.12)	3.08 (1.95)	3.74 (2.10)	4.49 (1.62)	4.01 (2.14)
Hassles-Total	5.68 (3.32)	5.91 (3.63)	5.42 (3.22)	6.04 (3.24)	4.84 (3.42)
Hassles-Severity	8.09 (6.12)	8.20 (5.80)	8.11 (5.96)	8.82 (5.84)	7.10 (5.70)
Multidimensional Pain Inventory-Severity	3.14 (1.28)	2.96 (1.53)	2.68 (1.51)	3.14 (1.31)	2.91 (1.55)

*Statistically significant hypothesized interaction effects demonstrated that treatment participants, as compared to the control group, showed a reduction in organic pain beliefs and an increase in the use of relaxation as a coping strategy from baseline to post-treatment.

Pain beliefs

In order to examine differences in the three subscales of the modified PBQ (i.e. Psychological Beliefs, Beliefs about Pain in Old Age, and Organic Pain Beliefs), a series of 2 (baseline vs. post-treatment) × 2 (treatment vs. waitlist control) ANOVAs were conducted. The only identified hypothesized effect was a significant interaction between condition and time for Organic Pain Beliefs, $F(1,89) = 7.75$, $p < .01$, $\eta = .08$. At post-treatment, experimental group participants obtained lower scores than control group participants with respect to Organic Pain Beliefs, $t(90) = 3.03$, $p < .01$, while the two groups did not differ at baseline.

Coping strategies

In order to examine intervention effects on coping strategies (as measured by the eight subscales of the CPCI), a series of 2 (baseline vs. post-treatment) × 2 (experimental vs. waitlist control) ANOVAs were conducted. The only hypothesized significant effects involved CPCI-relaxation. Specifically, there was a significant interaction effect, $F(1,91) = 11.75$, $p < .01$ $\eta = .11$, showing that the treatment group's scores increased from baseline to post-treatment, $t(92) = 3.00$, $p < .01$, while the waitlist control's scores remained unchanged.

Treatment group 3 months post-intervention follow-up

In order to determine whether the experimental group maintained benefits derived from the chronic pain management program (i.e. use of relaxation as a coping strategy as well as the reduction in organic pain beliefs) at a 3-month follow-up, repeated measures ANOVAs (baseline, post-treatment, and 3-month follow-up) were conducted (see Table 1 for means and standard deviations). These were followed by polynomial contrasts. Treatment gains were maintained at follow-up (Fs > 6.67; ps < .01).

Discussion

Considering the limited number of studies on chronic pain in seniors, this study makes several important contributions. First, this study evaluated the effectiveness of a pain management program designed specifically for seniors. Within this program, specific maladaptive pain beliefs and adaptive coping strategies were identified and targeted for change. In particular, we showed that the pain management program resulted in a change in pain beliefs (e.g. maladaptive organic pain beliefs) and behaviour (e.g. relaxation as a coping strategy) among seniors. Such changes are believed to be beneficial for participants in coping with future pain problems (Walsh and Radcliffe, 2002). Nonetheless, the potential preventative impact of our intervention is open for further study.

In this study, we did not find convincing evidence that the types of treatment adaptations we made to tailor the program to older persons led to improved outcomes as compared to previous studies that did not report such adaptations. Perhaps participants of both groups were able to adjust to pain flare ups that might have motivated them to participate in our study. Moreover, it is noted that participants were reporting relatively low levels of pain to begin with. Participants of studies demonstrating treatment-related reductions in pain intensity following a cognitive-behavioural pain management program tended to have had higher pain intensities at baseline. Nonetheless, there is a need to further study the impact of such adaptations in a variety of areas. For instance, future investigation might examine whether a treatment program

https://doi.org/10.1017/S1352465809005177 Published online by Cambridge University Press

that has been adapted for older adults is more inviting to an older person and whether this increases participation rates. Future research should also be conducted to test the effectiveness of a cognitive behavioural treatment program tailored for seniors with participants who are experiencing higher pain intensities than those reported by our sample. Participants who experience higher levels of pain at baseline may represent a more suitable population for assessing the effectiveness of our intervention in the reduction of pain intensity.

Limitations of our study include the unbalanced gender representation (80% of participants were female) and lack of data from the wait-list control condition at 3 months post-treatment. The former limitation has implications for the generalizability of our results while the latter makes it difficult to determine whether the treatment assisted participants in having improved functioning in the longer term. Moreover, this study involved patients whose health care needs related to pain were addressed primarily in primary care settings. Comparison with other patient samples receiving care is important to conduct and represents a possible avenue for future research.

Acknowledgements

This research was supported through funding from the Canadian Institutes of Health Research.

References

Cook, A. J. (1998). Cognitive-behavioural pain management for elderly nursing home residents. *Journals of Gerontology: Series B: Psychological Sciences and Social Sciences, 53B*, 51–59.

Edwards, L. C., Pearce, S. A., Turner-Stokes, L. and Jones, A. (1992). The pain beliefs questionnaire: an investigation of beliefs in the causes and consequences of pain. *Pain, 51*, 267–272.

Ersek, M., Turner, J. A., McCurry, S. M., Gibbons, L. and Kraybill, B. M. (2003). Efficacy of self-management group intervention for elderly persons with chronic pain. *Clinical Journal of Pain, 19*, 156–167.

Ferrell, B. A., Stein, W. M. and Beck, J. C. (2000). The geriatric pain measure: validity, reliability, and factor analysis. *Journal of the American Geriatrics Society, 48*, 1669–1673.

Gagliese, L. and Melzack, R. (1997). Lack of evidence for age differences in pain beliefs. *Pain Research and Management, 2*, 19–28.

Hadjistavropoulos, H. D. and de C. Williams, A. (2004). Psychological interventions and chronic pain. In T. Hadjistavropoulos and K. D. Craig (Eds.), *Pain: psychological perspectives* (pp. 271–301). Mahwah, NJ: Lawrence Erlbaum Associates.

Jensen, M. P., Turner, J. A., Romano, J. M. and Lawler, B. K. (1995). Relationship of pain-specific beliefs to chronic pain adjustment. *Pain, 57*, 301–309.

Kanner, A. D., Coyne, J. C., Schaefer, C. and Lazarus, R. S. (1981). Comparison of two modes of stress measurement: daily hassles and uplift versus major life events. *Journal of Behavioral Medicine, 4*, 1–39.

Kerns, R. D., Turk, D. C. and Rudy, T. E. (1985). The West Haven-Yale Multidimensional Pain Inventory (WHYMPI). *Pain, 23*, 345–356.

Martin, R., Williams, J., Hadjistavropoulos, T., Hadjistavropoulos, H. D. and MacLean, M. (2005). A qualitative investigation of seniors' and caregivers' views on pain assessment and management. *Canadian Journal of Nursing Research, 37*, 142–164.

Walsh, D. A. and Radcliffe, J. C. (2002). Pain beliefs and perceived physical disability of patients with chronic low back pain. *Pain, 97*, 23–31.

Waters, S., Woodward, J. T. and Keefe, F. (2005). Cognitive behavioral therapy for pain in older adults. In S. Gibson and D. Weiner (Eds.), *Pain in Older Persons* (pp. 239–261). Seattle: IASP Press.