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Research Letter

Chronic pain in cancer survivors improved after learning pain self-management techniques in an Australian pain clinic

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Dear Editor,

Introduction

Chronic pain is prevalent among cancer survivors, affecting more than 30% and interfering with function in half.[1] Unhelpful thoughts and beliefs like pain catastrophizing and low pain self-efficacy predict for high-impact chronic pain and are modifiable with psychological therapies.[2] However, less than 5% of cases in pain clinics have cancer pain.[3,4] Access is mainly limited to clinical trials.[5]

Cancer survivors do well when they participate alongside other patients in group pain self-management programs (PSMP) at our interdisciplinary Pain Management Center in Sydney, Australia. The aim of this Research Letter is to report the outcomes of 23 consecutive cancer survivors who participated in these programs.

Methods

We have previously reported a retrospective chart review of 271 consecutive cancer survivors seen at this center from 2014 to 2019.[6] Here we report the subset who participated in our group PSMP. The chart review was approved by the local Human Research Ethics Committee. Participants provided written consent for their data to be used for research.

New referrals to the clinic are individually evaluated by a specialist pain physician, physical therapist and clinical psychologist. This interdisciplinary team then recommends individualized treatment plans. If pain self-management training is part of the plan, the type (group vs individual) and intensity (10-, 20-, or 120-hours' duration) of training is tailored to the patient's needs. The treatment recommendation is then presented to the patient by the pain physician. Following a shared decision-making discussion, the patient decides whether to follow the advice.

The group programs are delivered by the interdisciplinary team, coordinated by a nurse. Cognitive behavioural therapy (CBT)-based methods are used, to educate participants about chronic pain and teach them self-management skills (stretching, goal setting, pacing up activities, applied relaxation, and desensitization) in groups of 5–10 independent of diagnosis.

From the EMR, we extracted demographic and clinical information and the responses to 4 validated self-report pain questionnaires, which are routinely completed by participants pre- and post-program: Brief Pain Inventory—Short Form (BPI-SF), Depression Anxiety Stress Scale (DASS-21), Pain Self-Efficacy Questionnaire (PSEQ), and Pain Catastrophizing Scale (PCS).[6]

Individual changes in the questionnaire scores between the start and end of the program were compared using paired *t*-tests. The scores were also categorized using established category cut points. The proportion of individuals achieving a downgrading of category (eg, moderate to mild) are reported.

Results

In total, 109 (63%) of 271 patients were recommended for pain-self management training. However, only 52 (48%) accepted, with 23 (44%) agreeing to participate in group programs.

Participants (13 women, 10 men) were aged 43–76 years. The median time since cancer diagnosis was 2.8 years. Breast cancer was most common. Pain had been present more than 2 years in 18 (78%). Nine (45%, 3 missing) were taking opioids at program start, average total daily dose 44.6 ± 51.7 mg oral morphine equivalents, with only one greater than 100 mg.

There were no dropouts from the program, but there were some missing data. The average scores before ($n = 20$) and after participation ($n = 19$) are shown in Table 1. Notably, the pre-program scores were lower than the clinic's norms for scores at referral. The average score for all questionnaires improved pre-/post-program, with moderate-to-large effect sizes (Cohen's d, 0.34 to 1.31). Of note, confidence to manage pain without medications (Item 7 of PSEQ) improved significantly. All but two participants discontinued opioids or reduced the dose.

While pain severity reduced category in only one participant, categorical improvement was common for pain

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Table 1. Changes in mean and category of questionnaire scores for whole group, pre-post.

Measure	Pre-program	Pain clinic mean[a]	Post-program	*P*	d[b]	Moderate/ severe, pre-program	Categorical improvement, post-program
Number completing questionnaires	20		18			20	18
BPI-intensity	4.9 ± 1.7	6.2	4.3 ± 1.8	.03	0.34	9 (6/3)[c]	1/6 (17%)
BPI- interference	5.6 ± 1.8	6.6	4.1 ± 1.5	<.01	0.91	6 (3/3)	5/6 (83%)
Depression-DASS 21	14.8 ± 10.2	17	9.9 ± 7.1	.02	0.56	4 (1/3)	3/4 (75%)
PSEQ	31.0 ± 13.0	22	38.2 ± 10.7	<.01	0.71	5 (4/1)	3/5 (60%)
PSEQ Item 7	*2.1 ± 1.6*	*n/a*	*3.6 ± 1.5*	*<.01*	*0.90*	…	…
PCS	21.3 ± 10.8	27	12.0 ± 9.9	<.01	1.31	9 (6/3)	7/8 (83%)
Taking opioids (%)	9/20, 45%	40	5/16, 31%[d]	.31	…	…	…

[a] Data from ePPOC report, 2023 https://www.uow.edu.au/ahsri/eppoc/.
[b] Cohen's d.
[c] 6 moderate; 3 severe.
[d] 3 of the 5 had reduced the dose post-program.

Table 2. Comparison of changes in questionnaire scores of treatment-related pain vs unrelated pain.

Measure	Pre-program	Post-program	*P*	d[a]	Moderate or severe, pre-program (*n*)	Categorical improvement, post-program
Treatment- related pain (*n* = 11)	**9**	**9**			**9**	**9**
BPI-intensity	5.3 ± 1.5	5.3 ± 1.5	.93	0	6 (4/2)[b]	0/6 (0%)
BPI-interference	5.7 ± 2.2	4.0 ± 1.4	.01	0.92	6 (3/3)	5/6 (83%)
Depression-DASS 21	17.6 ± 13.7	10.9 ± 9.6	.04	0.57	4 (3/1)	3/4 (75%)
PSEQ	33.0 ± 15.6	38.1 ± 12.8	.46	0.36	5 (4/1)	3/5 (60%)
Confidence to function without pain medications	*2.3 ± 1.9*	*3.1 ± 1.6*	*.32*	*0.74*	…	…
PCS	23.8 ± 12.9	14.3 ± 11.6	.12	0.77	6 (4/2)	5/6 (83%)
Taking opioids (proportion, %)	3/9 (33%)	3/9 (22%)	1.00	…	…	…
Unrelated pain (*n* = 12)	**11**	**9**			**11**	**9**
BPI-intensity	4.6 ± 1.9	3.4 ± 1.7	.14	0.67	3 (1/2)	1/3 (33%)
BPI-interference	5.4 ± 1.4	4.2 ± 1.8	<.01	0.74	7 (6/1)	2/8 (25%)
Depression-DASS 21	12.5 ± 5.8	10.8 ± 8.5	.01	0.23	4 (3/1)	3/3 (100%)
PSEQ	27.7 ± 10.4	38.2 ± 10.7	<.01	1.00	7 (5/2)	4/6 (67%)
Confidence to function without pain medications	*1.8 ± 1.4*	*3.9 ± 1.5*	*<.01*	*1.45*	…	…
PCS	17.3 ± 7.6	12.0 ± 9.9	<.01	0.6	3 (2/1)	2/2 (100%)
Opioids (proportion, %)	6/10 (60%)	2/9 (22%)	.11	…		

[a] Cohen's d.
[b] (4 moderate/2 severe).

interference (54% cases), depressed mood (75%), pain catastrophizing (77%), and pain self-efficacy (63%). The improvements were maintained at short-term follow-up, on average 3 months later.

Table 2 presents similar data to Table 1, but contrasts those with chronic pain from cancer treatment ± pre-existing pain vs pre-existing pain alone. Of the 11 with a component of treatment-related pain, categorical improvement was achieved on pain interference, depression, catastrophizing, and self-efficacy in 60–83% cases. While only a few were taking opioids, this did not change on the program and the improvement in confidence to manage without drugs was non-significant.

Discussion

Like participants with chronic non-malignant pain,[4,6] cancer survivors who participated in these PSMP had impaired function, depressed mood and unhelpful thoughts and beliefs about pain. Pain-related interference with function improved despite no reduction in pain severity, as might be expected with CBT. Reduction or discontinuation of opioids was not associated with an increase in pain. Individuals with treatment-related pain achieved improvement, giving weight to guidelines recommending non-pharmacological treatment of pain in cancer survivors,[7] although perhaps they are more resistant to reducing opioids than people with unrelated pain. That no-one dropped out from the programs suggests that participation in a mixed program with other chronic pain patients was acceptable to the survivors who agreed to engage with them.

Strengths of this chart review are its systematic identification of cancer survivors, the use of validated self-report measures, and the inclusion of data on opioids. Limitations include the single site, small sample size and lack of a control group. Furthermore, like any chart review restricted to those receiving a treatment, various confounders and selection biases undoubtedly influence the outcomes. However, we expected the participants would do well as the effectiveness of our programs is established.[8–10] But we were unaware that

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so many survivors decline to participate. Further examination of their charts identified various reasons, for example, resolution of pain, lack of time, transportation issues, lack of interest. Sadly, recurrence of cancer and/or resumption of cancer treatment were other reasons. Some of this pushback may be modifiable, for example, using motivational interviewing techniques, program delivery via videoconferencing, and having oncologists endorse the programs.

Conclusion

Cancer survivors with chronic pain improved after participating in CBT-based PSMP alongside patients with chronic noncancer pain. Improvement occurred in survivors with treatment-related pain as well as those with preexisting chronic pain. Improvement in pain outcomes was not dependent on reducing pain severity. Opioids were reduced or ceased in association with growing confidence to manage without them and did not worsen pain. Prospective controlled studies are needed to confirm these preliminary findings.

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Conflicts of interest: None declared.

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