Reducing Dropout in Acceptance and Commitment Therapy, Mindfulness Based-Cognitive Therapy and Problem-Solving Therapy for Chronic Pain and Cancer Patients Using Motivational Interviewing

Short Title: *Reducing Dropout in Cancer and Pain*

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Abstract

Objective. Acceptance and Commitment Therapy, Mindfulness-Based Cognitive Therapy and Problem-Solving Therapy are types of Cognitive Behavioural Therapy (CBT) group that improve physical and mental health in chronic pain or cancer. However, dropout is high due to group demands alongside physical impairments. Motivational interviewing (MI) is a well-evidenced means of enhancing treatment adherence. Few studies have investigated MI as an adjunct to CBT in cancer or chronic pain and none have established the minimum MI duration required for adherence improvement. This study evaluated minimal-duration MI to improve adherence in three CBT group-types for cancer and chronic pain.

Methods. In a cohort study of 99 cancer and chronic pain patients, 47 were given a 10–15-minute structured MI telephone intervention (MI-call) after the first session. The remaining 52 received a CBT group without MI (no-MI).

Results. Odds of completing group CBTs were 5 times greater for patients in the MI-call cohort versus no-MI. Effects remained when controlling for age, gender, diagnosis, group-type and baseline quality of life. The MI-call cohort attended one extra session per patient compared to no-MI, controlling for age, gender and diagnosis.

Conclusions. A brief MI telephone intervention may improve adherence to group CBTs in cancer and chronic pain.

Keywords: Motivational interviewing; cognitive behavioural therapy; cancer, chronic pain; adherence; dropout

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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Reducing Dropout in Acceptance and Commitment Therapy, Mindfulness Based-Cognitive Therapy and Problem-Solving Therapy for Chronic Pain and Cancer Patients Using Motivational Interviewing

Acceptance and Commitment Therapy (ACT), Mindfulness Based Cognitive Therapy (MBCT) and Problem-Solving Therapy (PST) are three types of Cognitive-Behavioural therapy (CBT) that are shown to have a range of benefits for cancer and chronic pain patients. Among cancer patients, MBCT led to improvements in quality of life and several symptoms related to cancer treatment, alongside indications of cost effectiveness (Haller et al., 2017; Johannsen, Sørensen, O'Connor, Jensen, & Zachariae, 2017). Health and quality of life was also improved with PST for cancer patients, even those with poor prognosis (Sharpe et al., 2014; Strong et al., 2008; Walker et al., 2014). In chronic pain, ACT is shown to have medium-to-large effects on pain acceptance and smaller effects on pain intensity and interference, alongside positive impacts on mental health and functioning (Feliu-Soler et al., 2018; Hann & McCracken, 2014; Hughes, Clark, Colclough, Dale, & McMillan, 2017).

The theoretical premise of ACT, MBCT and PST in long-term conditions emphasizes the damaging effect that can emerge from problematic reactions to cancer and chronic pain symptoms, rather than aiming to change the symptoms themselves (Hayes, Follette, & Linehan, 2004). Therefore, treatment focuses on developing a valued life alongside cancer or chronic pain, rather than a life spent trying to rid oneself of the symptoms associated with these illnesses. Group delivery is often preferred in all three therapies for cancer and chronic pain patients because it also addresses the isolation often experienced by people with these problems (Karayannis, Baumann, Sturgeon, Melloh, & Mackey, 2018; Macmillan Cancer Support, 2013).

However, the effectiveness of psychological therapies for cancer and chronic pain patients is limited by dropout, with recent evidence suggesting dropout rates of up to 50%

from CBT-based interventions in both conditions (Nicholas et al., 2012; Nicholas et al., 2014; Tickell et al., 2019). Furthermore, group psychological therapies have higher dropout rates than one-to-one programmes in general (Fernandez, Salem, Swift, & Ramtahal, 2015; Swift & Greenberg, 2012). Specifically, MBCT and PST can have higher dropout rates than group psychological therapies in general (Carlson et al., 2016; Cuijpers, van Straten, & Warmerdam, 2007; Schellekens et al., 2017; Swift & Greenberg, 2014). Reported ACT dropout rates have typically focused on one-to-one formats, but questions have been raised as to whether dropout is greater in group formats (Feliu-Soler et al., 2018). Overall, the accessibility and effectiveness of, MBCT, PST and ACT groups for cancer and chronic pain could be enhanced if dropout rates could be reduced.

Motivational Interviewing (MI) is a well-evidenced means of reducing dropout when used as an adjunct to group or individual CBT for mental health problems such as anxiety (Barrera, Smith, & Norton, 2016; Westra, Constantino, & Antony, 2016). It is also shown to improve adherence when used as an adjunct to medical treatments (e.g. Palacio et al., 2016). Motivational Interviewing is a person-centred counselling method that uses empathic and reflective interpersonal skills to manage patient resistance and elicit motivation for health behaviour change by resolving ambivalence about change (Miller & Rollnick, 2012). The approach is relevant to dropout from ACT, MBCT and PST, because motivation is a recognized factor influencing treatment adherence and retention (Antony, Ledley, & Heimberg, 2005). Therefore, MI could help patients with long-term conditions, such as cancer and chronic pain, to resolve ambivalence about engagement with an effortful, challenging treatment that is presented at a time when they may be suffering the physical and mental strain of disease (Demark-Wahnefried, Aziz, Rowland, & Pinto, 2005; Lawson & Flocke, 2009)

Although there is evidence for the use of MI as an effective standalone treatment in both cancer and chronic pain, there is little current evidence for the use of MI in conjunction with ACT, MBCT or PST groups in these populations (Alperstein & Sharpe, 2016; Spencer & Wheeler, 2016). Furthermore, it is unclear what minimum duration of MI is required for a clinically meaningful effect, as different studies have ranged from one to four or more hour-long sessions of MI added to CBT (Barrera et al., 2016; Westra, Arkowitz, & Dozois, 2009; Westra et al., 2016). Consequently, it is possible that clinically important effects might be gained from even a very small duration of MI, but the necessary amount of MI is currently unknown. If small durations of MI can suffice, integration with CBT-type groups might represent an easily implemented and cost-effective means of reducing group-dropout. This is noteworthy, because other, much less resource-intensive interventions (such as giving patients choice of appointment time or therapist) can have similar effects on treatment retention as several MI sessions (Oldham, Kellett, Miles, & Sheeran, 2012). Therefore, maximizing the efficiency of MI would help clarify whether it is truly comparable to other dropout-prevention interventions in terms of cost-effectiveness.

Most research on MBCT, PST, ACT and MI in cancer and chronic pain has been under experimental research conditions. This is important because dropout rates are typically higher in routine care settings than in controlled research trials (Hansen, Lambert, & Forman, 2002; NHS Digital, 2018). Furthermore, research trial participants are often significantly different from patients seen in routine practice in the severity and range of presentations (Barnish & Turner, 2017; Fortin et al., 2006). Therefore, dropout rates from research trials may underestimate the prevalence of this problem in clinical practice, making it harder to evaluate the effects that associated interventions may have.

The Present Study

Overall, current evidence suggests that a significant proportion of patients attending MBCT, PST and ACT groups for cancer and chronic pain drop out prematurely and do not, therefore, receive the full benefit they might if they completed their programme. Adjunctive MI may ameliorate this important problem but is as yet untested in these populations or any type of group CBT. It is also unclear how small the duration of MI can be for clinically important effects or whether current evidence for the integration of MI with CBT carries through from controlled research to clinical practice. This study evaluates the use of a minimal duration of MI as an adjunct to three types of CBT group for cancer and chronic pain patients in a routine care setting. This study aimed to assess whether the addition of a 10–15-minute MI telephone call reduced dropout from group MBCT and PST for cancer, and group ACT for chronic pain.

Method

Participants

Of the 99 participants, 52 were in the no-MI cohort and 47 in the MI-call cohort. Forty-six were cancer patients attending MBCT (no-MI = 22; MI-call = 24); 27 were cancer patients attending PST (no-MI = 14; MI-call = 13), and 26 were chronic pain patients attending ACT (no-MI = 16; MI-call = 10). All participants had been referred to a clinical psychology service in an acute NHS hospital setting in the UK. Cancer patients were referred by members of their treating cancer care team, including clinical nurse specialists, treating surgeons, or oncologists. Cancer patients received a screening assessment from a clinical psychologist face-to-face or by telephone. Among cancer patients, allocation to either MBCT or PST was determined on group availability, waiting time, and the presence of rumination as a key presenting problem – that is, repeated mental rehearsal of events either from the past or

anticipated in the future, with little sense of control or progress (Nolen-Hoeksema, 2000). If rumination was assessed to be a key presenting problem, patients were offered MBCT.

Chronic pain patients were referred to the same clinical psychology service from a multi-disciplinary chronic pain team, typically via specialist pain nurses or treating anaesthetists. Referred patients were offered a one-to-one assessment after an open information session where a decision was made about suitability for group-based ACT or one-to-one ACT if this was not deemed appropriate or feasible, based on either clinical judgement or patient preference.

Design

A non-randomized cohort study was conducted with consecutive MBCT and PST groups for cancer patients and ACT groups for chronic pain patients. One patient cohort was comprised of those attending at least the first session of a CBT group programme and offered a 10-15 minute structured MI-based telephone intervention after the first session (MI-call). The other cohort included those attending the first session of a CBT group and not offered this intervention (no-MI). Group attendance and clinical effectiveness was then compared between groups controlling for key demographic and clinical characteristics.

Therapists

The MBCT groups were all led by the same two clinical psychologists (JL and SM) who had received standardized training in MBCT delivery and had adherence monitored by an experienced MBCT supervisor using video recordings of sessions. The PST groups were each led by one of two clinical psychologists (SB and NP) and one of two cancer support staff. All PST group leaders had been trained using the same nationally standardized methods. PST therapists were observed and assessed by an established programme leader. All ACT for pain groups were led by the same two clinical psychologists (JR and WV). Both had

received specialist training in the use of ACT for chronic pain. No therapists facilitated more than one group-type.

Treatments

MBCT. The original eight-session MBCT programme (Segal, Williams, & Teasdale, 2013) was adapted to cancer care using an established treatment protocol (Bartley, 2012). Each treatment session included a new type of mindfulness practice, aimed at training non-judgmental awareness of the present moment and facilitating meaningful responses to moment-by-moment experiences. This included group reflection on the experience of each practice and 30-40 minute daily home practice between sessions. Cancer-related adaptations meant that each session was 2.5 hours long with breaks and space to opt in or out of all activities, dependent on physical limitations.

PST. A range of CBT interventions were tailored to patients experiencing cancer in six weekly group sessions of 2.5 hours each including a break using a nationally delivered programme (Turner & Martin, 2017). The protocol was based on PST methods shown to be clinically effective in improving quality of life in cancer care (Sharpe et al., 2014; Strong et al., 2008; Walker et al., 2014). This included problem-solving techniques, goal setting and behavioural activation related to common difficulties experienced by cancer patients. Each session included homework tasks where new techniques were tested out during the week.

ACT. An established ACT for chronic pain programme was adapted from a two week group including four sessions of four hours, to eight weekly sessions of two hours each (McCracken, Sato, & Taylor, 2013). This aimed to make the group more accessible to chronic pain community outpatients. Adaptations also meant that weekly homework could help patients to apply learning to their personal environment and share methods for overcoming barriers to progress. As with the original program, the current ACT group combined information giving, experiential learning techniques, and metaphor to help

participants to identify and address unhelpful patterns of avoidance whilst committing to values-based action.

MI-call. The MI telephone intervention was carried out in the week following the first session of MBCT, PST, or ACT. The calls were made to those who attended the first session by an independent clinical psychologist within the clinical psychology service who was not the therapist for the programme attended. All MI-call therapists had received specialist training in MI, including practice of MI skills. The call had a set of overall intentions coupled with some specific MI-based techniques applied in a semi-structured manner. Therapists primarily aimed to convey an attitude which expressed openness and acceptance of whatever patients chose, with respect for the patient's right to choose (Miller & Rollnick, 2012). Therapists were enabled to emphasize this attitude because they were not directly responsible for offering the treatment patients were considering. The intervention specifically intended to use reflections and summaries more than questioning. Summaries and reflections were used to draw out patients' personal values and gain a sense of what really mattered to the patient that the group programme could help them with. The call also intended to focus on elicitation of hopes and potential benefits of the group to the individual patient, setting aside explaining or offering any benefits the therapist might feel patients could have. Lastly, the call aimed to acknowledge difficulties experienced by patients and if possible, agree a means of addressing them. The call explicitly aimed to minimize directing patient choice, unsolicited information-giving, and confronting problematic health behaviours, particularly withdrawal from CBT groups.

The call was opened with an introduction, typically explaining the purpose of the call:

> "Hi, I am calling from the clinical psychology service. You recently attended one of our groups and we recognize that keeping going with a group can be a challenge. So, I am

one of the other clinical psychologists and I am calling to see how you found the group so far and what you would like to get out of it in the long-run."

The conversation was then semi-structured around a series of established MI questions:

1. What hopes/concerns do you have for the group?
2. What are the most important reasons for you to attend the group?
3. Why are these things important to you? (summarize: " So X is important to you")
4. What do you think would give you the best chance of success with the group?
5. What do you imagine you will do? / How do you imagine you will approach the next session?

At the end of the call the therapist summarized the key challenges involved in attending the group, the main personal reasons for the patient to attend, and the ways that patients identified for overcoming barriers ("the best chance of success"). The MI-call therapist then had no further direct input with the group attendees but fed back summaries of each call to the therapists leading the relevant group.

Outcome Measures

Attendance. Where patients were present for any part of a session it was counted as attending. Using established criteria, attending four or more group sessions was categorized as treatment completion (Teasdale et al., 2001).

Cancer-Related Quality of Life. The Functional Assessment of Cancer Therapy – General 7-items (FACT-G7; Yanez, Pearman, Lis, Beaumont, & Cella, 2012) was used to assess quality of life specific to cancer patients. The FACT-G7 asks about the most important quality of life factors, as rated by cancer patients, which includes fatigue, sleep, pain, nausea, fear of recurrence and enjoyment of life using a five-point Likert scale (e.g. "I have lack of energy – not at all, a little bit, somewhat, quite a bit, very much"). It was administered pre- and post-treatment as the outcome in both MBCT and PST groups. The FACT-G7 has shown

good internal consistency ($\alpha = 0.74$) and moderate-to-strong association with established quality of life assessments (r_ss = .60 to .89) (Yanez et al., 2012).

Chronic Pain Acceptance. The chronic pain acceptance questionnaire (CPAQ; McCracken, Vowles, & Eccleston, 2004) is a 20-item assessment of pain acceptance comprised of two sub-scales: pain willingness (absence of attempts to control pain) and activity engagement (performing desired activities in spite of pain). Seven-point Likert scales are used to rate each statement from "Never true" to Always true" (e.g. I am getting on with the business of living no matter what my level of pain is). The CPAQ was used as the pre-post treatment outcome measure in the ACT for chronic pain group. Reneman, Dijkstra, Geertzen, and Dijkstra (2010) determined that the CPAQ showed superior psychometric properties compared to other assessments of pain acceptance, with good internal consistency (αs = .62 to .84) and negative associations with pain intensity, pain-related anxiety, and disability (rs = -0.66 to -0.28).

Procedure

Data were collected from four PST, five MBCT, and three ACT groups between May 2017 and July 2019. The no-MI cohort was composed of participants attending the two earlier PST groups, three earlier MBCT groups, and two earlier ACT groups. Group therapists had no awareness of the MI-call intervention during groups where it was not included as an intervention.

Participants' attendance was recorded by therapists on arrival at the start of the session and amended at the end of the group if other participants joined part way through. Outcome measures were completed on arrival directly prior to the first session and directly prior to the final session (or at the end of the final session in the case of ACT).

Method of Analysis

Differences between MI-call and no-MI cohorts were assessed using Mann-Whitney-U and chi square tests for continuous and categorical variables, respectively. Logistic regression was used to assess differences between MI-call and no-MI groups in completion rates controlling for a priori determined covariates: age, gender, diagnosis (cancer or chronic pain), and group type (PST, MBCT, or ACT). A one-way analysis of covariance (ANCOVA) was used to evaluate possible differences between MI-call and no-MI groups in the number of sessions attended, controlling for age, gender, diagnosis and group-type. As model residuals were slightly skewed, a 1,000 samples bootstrap was applied to give more reliable estimates for the 95% confidence interval. Cohen's *d* was computed based on estimated marginal mean-differences and robust standard errors (0.20 'small', 0.50 'medium', 0.80 'large'). As cancer and chronic pain patients completed different outcome measures, a sub-analysis including just cancer patients added baseline FACT-G7 as an additional (1) predictor in logistic regression for completion and (2) covariate in ANCOVA for number of sessions attended. To examine potential differences in clinical effectiveness between MI-call and no-MI groups, separate analyses were run for cancer and chronic pain patients (focussing on the FACT-G7 and CPAQ respectively). MI group effects were assessed using ANCOVAs on post-treatment outcome scores controlling for baseline scores. Bootstrapping (1,000 samples) was again applied to account for skewed residuals. A diagnostic group-specific analysis was also completed for cancer patients using post-group FACT-G7 as outcome and MI-call and baseline score as predictors. Due to the small sample of completed outcomes in chronic pain groups, this sub-analysis could not be repeated with the CPAQ. Overall clinical effectiveness among cancer patients was calculated using a paired t-test and Wilcoxon signed ranks for chronic pain patients. Only observed data was used in all analysis; missing data was not imputed.

Analysis was completed using SPSS 24. Ethical approval was not required, as the data were anonymized and collected as part of routine care. The project was registered with the relevant NHS Trust.

Results

Sample Characteristics

Both MI-call and no-MI groups were predominantly female with a mean age of 55 in both groups (Table 1). In both MI-call and no-MI cohorts, patients with breast cancer were the largest cancer sub-group. Baseline FACT-G7 and CPAQ scores in both groups indicated impaired quality of life among cancer patients and low pain acceptance among chronic pain patients. Both baseline scores in MI-call and no-MI groups were approximately one standard deviation below the mean by comparison to normative reference data (McCracken et al., 2004; Yanez et al., 2012). Baseline FACT-G7 scores were significantly higher in the MI-call group ($Z = 2.88$, $p = .004$), which was controlled in cancer patient sub-analyses. There were no other significant demographic or clinical differences between groups.

Group Attendance

In absolute terms, those within the no-MI group attended a mean 5.3 sessions (SD = 2.3) and those within the MI-call group attended a mean 6.3 sessions (SD = 1.7). Using the established criterion of attendance at four group sessions to categorize group completion, there were 14 dropouts (27%) in the no-MI group and 4 (9%) in the MI-call group.

Group Completion

Regressing MI-call/no-MI on group completion indicated that the odds of completing the group programme were 5 times greater for patients in the MI-call cohort versus no-MI cohort controlling for age, gender and diagnosis (Table 2). There were no differences in effect between MBCT ($OR_{adjusted} = .95$, 95% CI = .27 – 3.35, $p = .940$), PST ($OR_{adjusted} = .1.05$, 95% CI = .30 – 3.71, $p = .940$) and ACT ($OR_{adjusted} = .1.68$, 95% CI = .39 – 7.24, $p =$

.488) groups. Bootstrapped one-way ANCOVA indicated significantly greater session attendance in the MI-call group compared to no-MI (F [1, 94] = 5.44, p = .020, d = 0.47 [95% CI 0.06, 0.88]) when controlling for age, gender, and diagnosis. The estimated marginal mean-difference (.98 [95% CI 0.10, 1.80]) indicated that those in the MI-call group attended one additional group session per participant compared to those in the no-MI group.

Cancer Diagnosis Completion

In a diagnosis level sub-analysis of group completion, the difference in favour of MI-call amongst cancer patients (n = 68) increased when controlling for baseline cancer-related quality of life ($OR_{adjusted}$ = 10.0, 95% CI = 1.80 – 55.80, p = .009) and increased further if age and gender were also controlled ($OR_{adjusted}$ = 11.20, 95% CI = 1.9 – 65.81, p = .009). Similarly, there was a greater difference in number of sessions attended (favouring the MI-call group) when limiting the bootstrapped ANCOVA model to cancer patients and entering baseline cancer-related quality of life as an additional covariate (F [1, 63] = 4.95, p = .013, d = 0.61 [95% CI 0.11, 1.11]; estimated marginal mean-difference = 1.245 [95% CI .21, 2.22]). As baseline CPAQ data were only available for 15 of the pain group attendees, similar sub-analysis could not be performed.

Clinical Effectiveness

Results of bootstrapped one-way ANCOVAs, controlling for baseline scores, indicated that there were no post-treatment differences in clinical outcomes between MI-call and no-MI groups, either in cancer (FACT-G7; F [1, 40] = 0.00, p = .965, d = 0.01 [95% CI -0.61, 0.63]) or chronic pain (CPAQ; F [1, 7] = 2.13, p = .139, d = 0.82 [95% CI -0.72, 2.37]) – indicating that MI allocation did not affect clinical effectiveness. In terms of overall effectiveness across MI groups, there was a significant pre-post group improvement in cancer-related quality of life among cancer patients ($M_{difference}$ = 3.63, t(43) = 4.40, p <.001) with a moderate effect size (d = 0.63) and a mean difference exceeding the minimal clinically

important difference (Cella, Hahn, & Dineen, 2002). There was also a significant improvement in pre-post pain acceptance among chronic pain patients ($Z = 2.08$, $p = .038$) with a large effect size ($d = 0.84$).

Discussion

This study indicates that a minimal-duration MI intervention can significantly increase adherence and reduce dropout in MBCT, PST and ACT groups for cancer and chronic pain patients. Results controlled for the effects of age, gender, diagnosis, group-type and baseline quality of life among cancer patients but were not able to control for baseline pain acceptance among chronic pain patients. There was no difference between groups in terms of clinical effectiveness, but potential differences could have been masked by the lack of follow-up for patients who dropped out. The routine care setting, pragmatic methods and low per-patient costs suggest the intervention could be implemented into clinical practice with minimal additional resource.

Relationship to Existing Literature

Although MI has previously been used to prevent dropout, studies have typically incorporated several pre-treatment MI sessions or at least one hour long session with little clarity on what is required as a minimal duration for clinical effect (Palacio et al., 2016; Westra et al., 2016). This study confirms existing findings that MI is effective for reducing dropout (Oldham et al., 2012); the application of minimal-duration MI to MBCT, PST and ACT groups in cancer and chronic pain also extends current evidence. This study suggests dropout can be reduced using brief MI, even with health conditions that are likely to include severe physical impairments, either directly or as a result of related treatments (e.g. chemotherapy). Therefore, even where participating patients may have significant disability and demands associated with treatment that could prevent attendance, MI's motivation enhancement may still have a clinical effect. This study also extends existing evidence by

evaluating a minimal duration of MI for clinical effect: a 15-minute, one-off structured telephone call.

The therapeutic processes in MI focus on eliciting and strengthening motivation for a targeted change (Miller & Rollnick, 2012). This study suggests that the impact of this type of conversation can take effect very quickly. Furthermore, this study indicates that personal motivations play a significant role in psychological therapy dropout, even when patients have physical limitations that could independently prevent attendance.

Strengths

The routine care setting for this study is a key strength in terms of practical implementation. This study gives a more reliable estimate of dropout from MBCT, PST and ACT groups in a clinical practice population and setting, which can be significantly worse than rates reported in controlled trials (Hansen et al., 2002; NHS Digital, 2018). This study also gives a practical, service-level example of how a brief MI intervention could be applied in a clinical psychology service. Although future research should investigate this study's sub-groups (e.g. ACT for chronic pain separate from MBCT for cancer), this study presents a way of implementing an intervention across diagnostic categories in a practicable way for clinical psychology services. Overall, this study presents a pragmatic methodology using minimal clinical resources.

Limitations

The cohort study design employed means that differences between cohorts cannot be ruled out. In particular, the no-MI cancer group had significantly poorer quality of life at baseline. Nonetheless, a significant effect remained for the MI-call group when controlling for quality of life and there were no other significant differences in clinical or demographic characteristics assessed. The no-MI cohort was also drawn from earlier groups for each therapy-type, which puts the study at risk of temporal differences unrelated to the MI call.

For example, therapists may have become better at identifying and engaging patients at risk of dropout in later groups, due to greater experience of running the programs.

As data were collected in routine care, rather than a controlled research setting, only pre-post treatment outcomes were collected from those attending group sessions and outcomes of those who dropped out were not collected. This limits the reliability of findings for MI-call's clinical effectiveness. Firstly, those who dropout of cognitive behavioural therapies early are more likely to have poorer outcomes (Clark et al., 2009). Therefore, the larger proportion of patients unavailable to give outcome assessments in the no-MI group are likely to have had poorer outcomes. Therefore, the outcome comparison given may not be sufficiently balanced. Secondly, the beneficial effects of MI in MBCT, PST and ACT groups may not be evident until several months after treatment is completed. For example, Westra et al. (2016) found that MI integrated with CBT (MI-CBT) did not differ in effectiveness from CBT alone directly after treatment for generalized anxiety, but significantly greater benefits were apparent for MI-CBT at one-year follow-up. Therefore, pre- and post-treatment outcome assessment may be insufficient to evaluate the clinical effects of MI in this study. The sample size for ACT groups in chronic pain was too small to control for the effect of baseline pain acceptance on dropout and attendance. Therefore, it is possible that baseline differences between groups could have explained differences in dropout and attendance rates. However, no differences in attendance were found between cancer and pain, suggesting similarly-sized effects of MI for cancer and chronic pain.

Future Research

This study suggests that randomized controlled trials of a minimal-duration MI intervention are warranted to assess the effect on dropout from MBCT, PST and ACT groups in cancer and chronic pain. Future research should be designed with greater specificity, to separately investigate different diagnostic groups and different CBT group-types. Such

studies should include follow-up for patients who drop out and extend outcome assessments several months beyond the end of treatment, to clarify whether MI has a longer-term effect on outcome among cancer and chronic pain patients in the same way as generalized anxiety. Future research should also investigate the cost effectiveness of a minimal-duration MI intervention, as this study is unable to quantify this effect. Current evidence for MI integrated with CBT suggests a potential benefit for having the same therapist for both MI and the following therapy (Westra et al., 2009; Westra et al., 2016). However, the current study did not contribute to this type of evidence. Future research could investigate differential effects of having the same or different therapists perform MI calls and CBT groups. There is also the possibility that dropout prevention could be enhanced in CBT groups for chronic health conditions other than pain and cancer, which could be investigated in future.

Conclusion

Overall, this study indicates that even a 15-minute structured MI telephone call can have a significant effect on dropout from MBCT, PST and ACT groups in cancer and chronic pain. Given the purported mechanisms of MI, this suggests that eliciting an individual's own good reasons for attending a potentially challenging psychological intervention can be conducted very briefly with a significant clinical effect.

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Table 1.

Demographic and clinical characteristics of MI-call and no-MI groups.

Demographics	No-MI (n = 52)	MI-call (n = 47)
Females	36 (69%)	39 (83%)
Mean age (SD)	55 (10)	55 (10)
Clinical Characteristics		
Cancer diagnosis	36 (69%)	37 (79%)
Cancer site (% within cancer)		
Breast	15 (29%)	19 (40%)
Lower Gastro-intestinal	6 (12%)	4 (9%)
Haematology	3 (6%)	5 (11%)
Head and Neck	3 (6%)	5 (11%)
Brain	2 (4%)	1 (2%)
Gynaecology	0	3 (6%)
Urology	2 (4%)	1 (2%)
Lung	2 (4%)	0
Upper Gastro-intestinal	2 (4%)	0
Hepatobiliary	0	1 (2%)
Chronic Pain diagnosis	16 (31%)	10 (21%)
Baseline FACT-G7 (SD)	10.0 (4.5)	14.1 (5.8)
Baseline CPAQ (SD)	58.0 (28.8)	37.1 (19.2)

Note. MI, Motivational Interviewing; SD, Standard Deviation; FACT-G7, Functional Assessment of Cancer Treatment – General 7-items; CPAQ, Chronic Pain Acceptance Questionnaire.

Table 2.

Logistic regression of group completers versus dropouts predicted by MI-call versus no-MI

Parameter	B	SE	Wald	*p*	Adjusted OR	95% CI	
						Lower	Upper
MI calling	1.56	0.63	6.02	.014	4.74	1.37	16.40
Age	-0.04	0.03	2.03	.155	0.96	0.91	1.02
Gender	-0.66	0.71	0.85	.358	0.52	0.13	2.10
Diagnosis (0 = pain 1 = cancer)	0.52	0.75	0.48	.488	1.68	0.39	7.24
Constant	3.67	2.00	3.35	.067	39.19		

Note. Abbreviations: B, beta coefficient; SE, standard error; *p*, significance with alpha .05; OR, odds ratio; CI, confidence interval.