

SUPPLEMENTAL FILES

Study Title Mindfulness-based intervention in patients with persistent pain in chest (MIPIC) of non-cardiac cause: a feasibility randomised-control study.

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Supplemental Figure 1: Schematic of study design.

RACPC, rapid access chest pain clinic; EPR, electronic patient record; MBCT, mindfulness-based cognitive therapy.

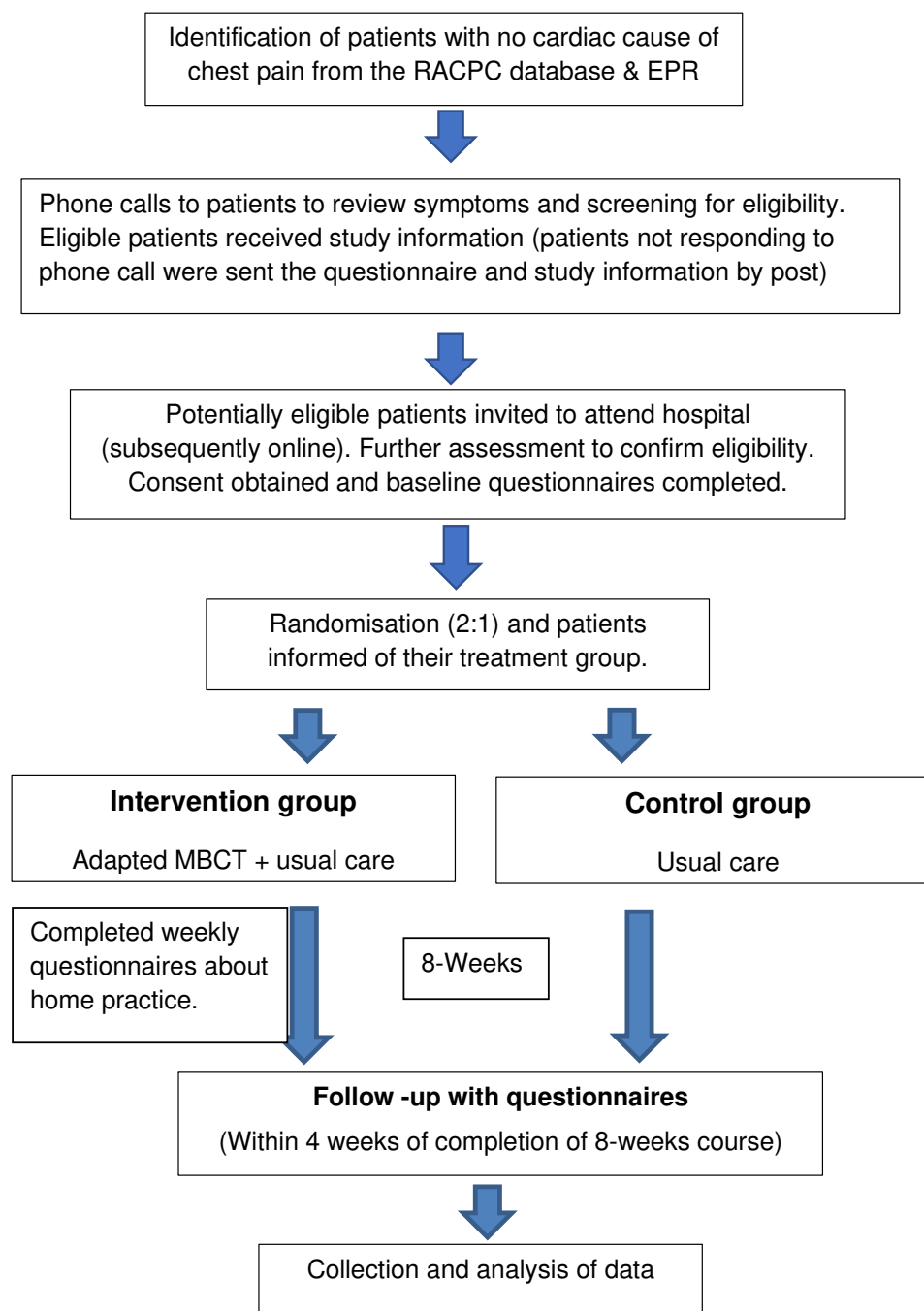
Supplemental Figure 2: Sample size calculation.

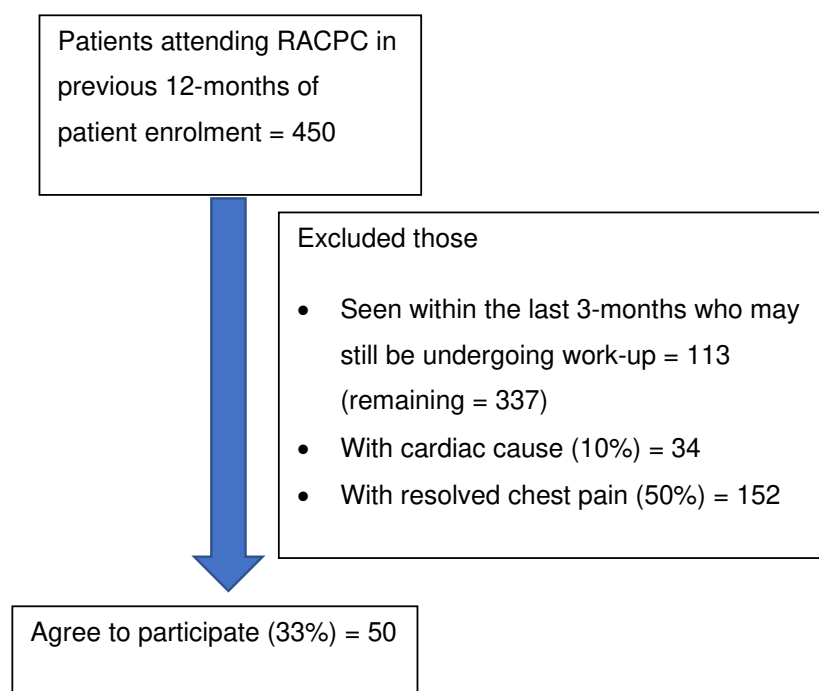
RACPC, rapid access chest pain clinic

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Supplemental Figure 1. Schematic of study design

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Supplemental Table 1: MBCT 8-week programme and its adaptation for chest pain

Session	Original MBCT programme	MBCT programme adaptation for chest pain
Week-1		
Theme	Awareness and Automatic pilot	Stepping out of Automatic pilot
Session practices and home-assignment	<ol style="list-style-type: none"> 1. Establishing the class orientation 2. Setting rules for confidentiality and privacy 3. Group introduction 4. Raisin exercise¹ followed by practice review 5. Body scan practice¹ followed by practice review 6. Distributing Session 1 handout 7. Home practice assignments <ul style="list-style-type: none"> • Body scan¹ (6 out of 7 days) • Mindfulness of a routine activity • Discussion on challenges of home practice 	<ol style="list-style-type: none"> 1. Class orientation included focus on exploring ways of living with chest pain. 2. Same 3. Same 4. Same 5. Exploring pain and physical discomfort – experiential group exercise and psychoeducation 6. Body scan practice¹ followed by practice review 7. Sharing handout 8. Home practice assignments <ul style="list-style-type: none"> • Same
Week-2		
Theme	Living in our heads	Relationship between thought, emotions, and physical sensations and learning to anchor attention
Session practices and home-assignment	<ol style="list-style-type: none"> 1. Body scan¹ practice and review 2. Home practice review including difficulty in-home practice 3. Thoughts and feelings² exercise 4. Pleasant Experiences Calendar 5. Ten-minute sitting meditation¹ 6. Distributing Session 2 handout 7. Home practice assignment 	<ol style="list-style-type: none"> 1. Same 2. Same 3. Same, with an illustration of how our interpretation of physical symptoms relates to our thoughts & feelings 4. Same 5. Same

	<ul style="list-style-type: none"> • Body scan¹ (6 out of 7 days) • Mindfulness of breath¹-10 min (6 out of 7 days) • Pleasant Experiences Calendar • Mindfulness of Routing activity¹ 	6. Sharing Session 2 handout 7. Home practice assignment <ul style="list-style-type: none"> • Same
Week-3		
Theme	Gathering the scattered mind	Gathering the scattered mind and bringing mindfulness to daily life
Session practices and home-assignment	1. 5-minute “seeing” (or “hearing”) ¹ 2. 30-minute sitting meditation ¹ followed by practice review 3. Home practice review 4. 3-step breathing space ¹ and review. 5. Mindful stretching ¹ and review 6. Setting up Unpleasant Experiences Calendar practice 7. Distributing Session-3 handout 8. Home practice assignment <ul style="list-style-type: none"> • Stretch & breath meditation¹ days 1, 3, and 5 • 40-minute mindful movement¹ on days 2, 4. And 6 • Unpleasant Experiences Calendar • 3-step breathing space¹, regular times 	1. Not included 2. Same, with an exploration of any pain in the chest 3. Same 4. Mindful movement ¹ (40 minutes) and review 5. Over/ under activity trap ² (10 minutes) including discussion about any particular movements that trigger chest pain leading to worry or avoidance. 6. 3-step breathing space ¹ and review. 7. Same 8. Home practice assignment <ul style="list-style-type: none"> • Same
Week-4		
Theme	Recognising aversion	Reactions to experience – Mapping the territory
Session practices and home-assignment	1. 5-minute “seeing” (or “hearing”) ¹ 2. 30-minute sitting meditation ¹ followed by practice review 3. Home practice review	1. Not included 2. Same 3. Same

	<ol style="list-style-type: none"> 4. Defining the territory of depression: Automatic Thoughts questionnaire² 5. 3-step breathing space¹ and review 6. Mindful walking¹ 7. Distributing Session-4 handout 8. Home practice assignment <ul style="list-style-type: none"> • Sitting meditation¹ (40 minutes), 6 out of 7 days • Breathing space¹, regular 3 times a day • Breathing space¹, responsive 	<ol style="list-style-type: none"> 4. Getting to know the territory of our minds² – exercise to explore pain in the chest and reactions including thoughts and catastrophising. 5. Same 6. Same 7. Sharing Session-4 handout 8. Home practice assignment <ul style="list-style-type: none"> • Same
Week-5		
Theme	Allowing/Letting Be	Opening up to difficulty and allowing things to be as they already are
Session practices and home-assignment	<ol style="list-style-type: none"> 1. 30-minute sitting meditation¹ and practice review 2. Home practice review 3. Breathing space¹ with added instructions and review 4. Read Rumi's poem "The Guest House" 5. Distributing Session 5 handouts 6. Home practice assignment: <ul style="list-style-type: none"> • Working with difficulty meditation¹, guided and unguided on alternated days • Breathing space¹, regular 3 times a day • Breathing space¹ with added instructions 	<ol style="list-style-type: none"> 1. Same 2. Same 3. Recap: Getting to know the territory of our minds 4. Vicious flower exercise² 5. Breath space¹ with added instructions 6. Rebalancing the focus: The pleasure of small things² 7. Sharing Session 5 handout 8. Home practice assignment <ul style="list-style-type: none"> • Same

Week-6		
Theme	Thoughts are not Facts	Relating to Thoughts Differently
Session practices and home-assignment	<ol style="list-style-type: none"> 30-minute sitting meditation¹ and practice review Home practice review Moods, thoughts, and alternative viewpoints exercise² (office scenarios) Breathing space¹ and review Discuss relapse signature² Distributing Session 6 handout Home practice assignment <ul style="list-style-type: none"> Practicing with a selection of guided meditations¹ for 40 minutes a day Breathing space¹, regular Breathing space¹, responsive 	<ol style="list-style-type: none"> Same Same Same Same Rebalancing the focus: Opening to pleasant experiences² Relapse signature: Working wisely with challenging physical symptoms² Sharing Session 6 handout Home practice assignment <ul style="list-style-type: none"> Same
Retreat – Whole day practice in silence (Sunday following week-6)		
	<p>Duration: 6 hours 30 minutes</p> <ul style="list-style-type: none"> Sitting meditation¹ Mindful stretching¹ Body scan¹ Lunch in silence Brief sitting¹ Walking meditation¹ Mountain meditation¹ Mindful stretching¹ Silent sitting or extended breathing space¹ Feeding back experiences in pairs Large-group discussion 	<p>Duration: 5 hours 30 minutes</p> <ul style="list-style-type: none"> Sitting meditation¹ Stretch and breath¹ Body scan¹ Lunch in silence Yoga stretches¹ Loving-kindness practice¹ or Mountain meditation¹ Walking meditation¹ Mindful stretching Sitting with body & breath¹ Feeding back experiences in pairs Large-group discussion

Week-7		
Theme	How can I best take care of myself?	How can I best take care of myself?
Session practices and home-assignment	<ol style="list-style-type: none"> 1. 30-minute sitting meditation¹ with practice review 2. Home practice review 3. Exercise to explore links between activity and mood² 4. Plan how best to schedule activities when mood threatens to overwhelm² 5. 3-step breathing space¹ 6. Identifying actions to deal with threat of relapse/recurrence of depression² 7. 3-step breathing space¹ or mindful walking¹ 8. Distributing Session 7 handout 9. Home practice assignment <ul style="list-style-type: none"> • Same as in Session 6 + • Developing an action plan to be used in the face of lowered moods. 	<ol style="list-style-type: none"> 1. Same 2. Same 3. Same 4. Same 5. Same 6. Working wisely with challenging physical symptoms² 7. Sharing Session 7 handout 8. Home practice assignment <ul style="list-style-type: none"> • Same
Week-8		
Theme	Maintaining and extending new learning	Planning for a new way of living
Session practices and home-assignment	<ol style="list-style-type: none"> 1. Body scan practice¹ and review 2. Home practice review 3. Reviewing the whole course 4. Discuss how best to keep up momentum developed over last 7-weeks 	<ol style="list-style-type: none"> 1. Same 2. Same 3. Same 4. Same 5. Same 6. Same

	5. Check and discuss plans, and link to positive reasons to maintain practice 6. Distributing Session 8 handout 7. Concluding meditation ¹	7. Same
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MBCT, Mindfulness-based cognitive therapy

¹Mindfulness practices

²Cognitive-behaviour Therapy exercises

Supplemental Table 2: Medication at recruitment

Characteristic	All	Intervention group (n=22)	Control group (n=11)	p-value
Statins (%)	11 (33)	10 (45)	1 (9)	0.04
Aspirin (%)	4 (12)	4 (14)	1 (9)	0.71
Nitrates (%)	1 (3)	1 (5)	0 (0)	0.47
Beta-blockers	0	0	0	
Calcium channel blockers (%)	4 (12)	2 (9)	2 (18)	0.45
Metformin (%)	5 (15)	4 (18)	1 (9)	0.49
ACE inhibitors (%)	9 (27)	7 (32)	2 (18)	0.41
Proton pump inhibitors (%)	8 (24)	6 (27)	2 (18)	0.57
Anxiolytics (%)	5 (15)	4 (18)	1 (9)	0.49
Anti-depressants (%)	7 (21)	5 (23)	2 (18)	0.76
NSAIDS (%)	3 (9)	3 (14)	0	0.20

ACE, angiotensin-converting enzyme inhibitors; NSAID, non-steroidal anti-inflammatory drugs

Supplemental Table 3: Treatment effect in control and MBCT groups.

Variable	Difference (Post – Pre)		Treatment Effect (95% CI)	p
	Control Group (n=6)	MBCT Group (n=18)		
SAQ				
PLS	-1.5 (-7, 0)	1.5 (-1, 10)	5 (-4 to 18)	0.20
ASS	-25 (-75, 25)	0 (-25, 50)	50 (-25 to 75)	0.14
AFS	-10 (-20, 40)	10 (0, 40)	20 (-20 to 60)	0.29
QOL	0 (-12, 25)	13 (0, 25)	13 (-5 to 37)	0.20
HADS				
Anxiety	0.5 (-1, 2)	-3 (-4, -1)	-3 (-6, -1)	0.019
Depression	0 (-1, 1)	-3 (-5, 0)	-3 (-5 to 0)	0.07
CAQ	-0.1 (-0.2, 0.1)	-0.15 (-0.5, 0.2)	-0.1 (-0.5 to 0.4)	0.71
FFMQ_				
Describing	-0.83	2.06	2.89	0.028
Awareness	-0.17	1.11	1.28	0.30
Non-judging	-1.33	1.33	2.66	0.032
Non-reactivity	-0.17	1.72	1.89	0.25
Total score	-2.50	6.22	8.72	0.002
EQOL				
Mobility	0 (0, 0)	0 (0, 0)	0 (0 to 1)	0.62
Self-care	0 (0, 0)	0 (-1, 0)	0 (-1 to 0)	0.53
Usual activities	0 (0, 0)	0 (-1, 0)	0 (-1 to 0)	0.77
Pain discomfort	0 (-1, 0)	0 (-1, 0)	0 (-1 to 1)	0.71
Anxiety/depression	0 (-1, 0)	0 (-1, 0)	0 (-1 to 0)	0.77
Health today	-6 (-10, -5)	8 (-19, 10)	13.5 (-13 to 29)	0.19
ASUS				
Hospital Inpatient	0 (0, 0)	0 (0, 0)	0 (0, 0)	1.00
Hospital Outpatient	0 (-1, 0)	0 (0, 0)	0 (0 to 1)	0.11
A&E	0 (0, 0)	0 (0, 0)	0 (0, 0)	1.00
GP	0 (-1, 0)	0 (0, 1)	1 (-1 to 2)	0.34

SAQ, Seattle Angina Questionnaire; PLS, Physical limitation score; ASS, Angina stability score; AFS, Angina frequency score; HADS, Hospital Anxiety and Depression Scale; CAQ, Cardiac anxiety questionnaire; FFMQ, Five facet mindfulness questionnaire; EQOL, European Quality of Life questionnaire; AD-SUS, Adult service use schedule