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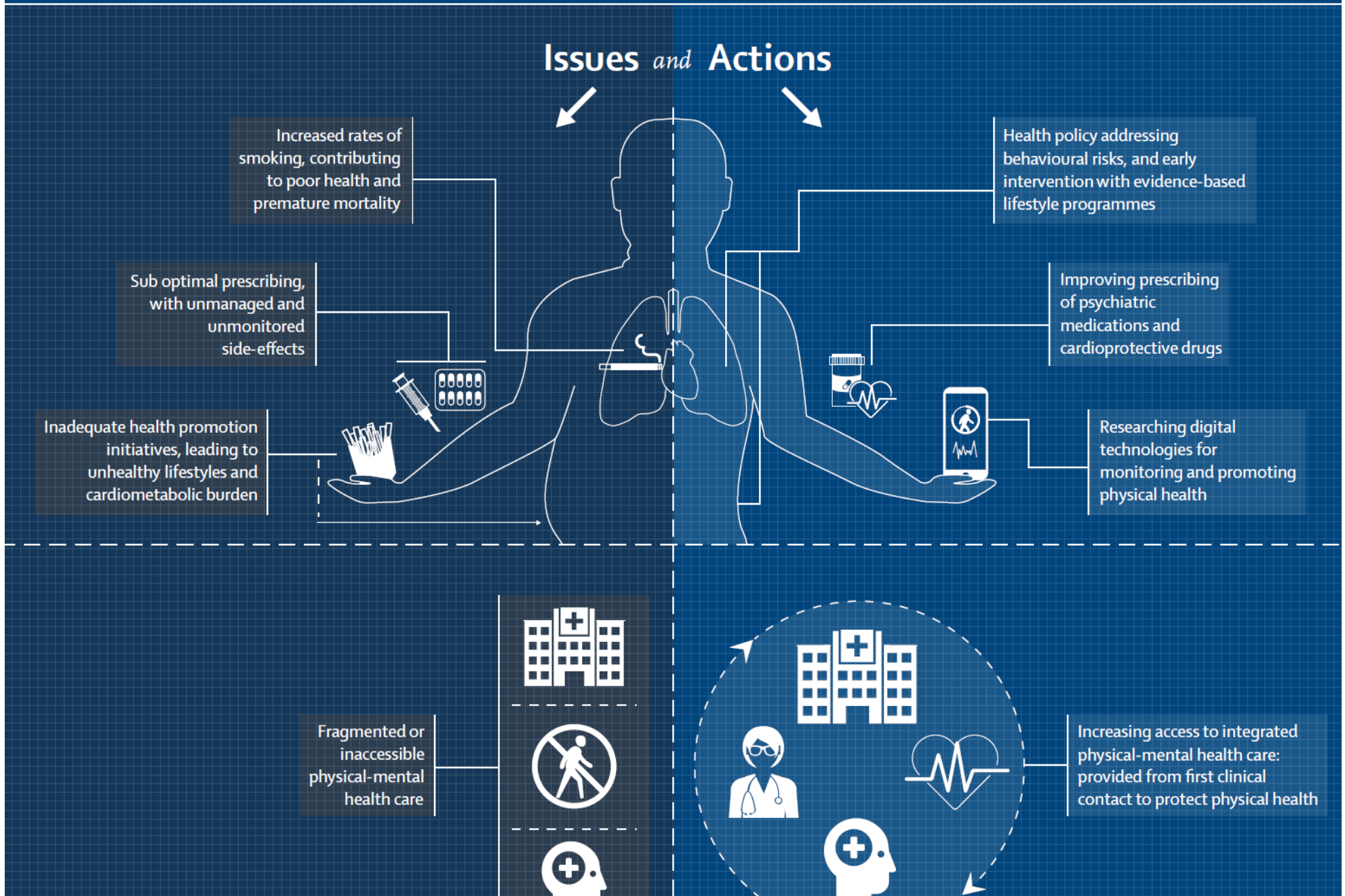
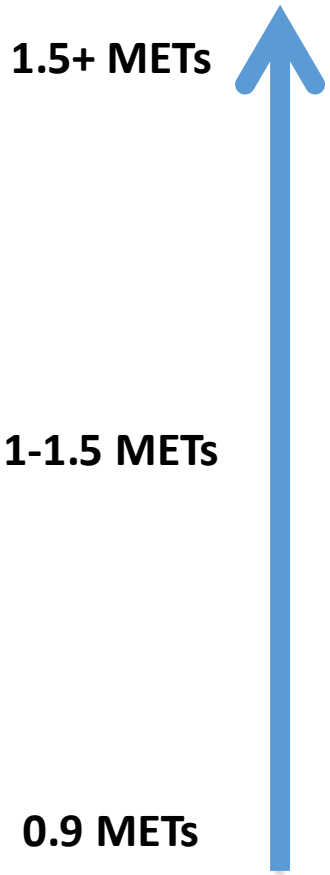
A Blueprint for Protecting Physical Health in Mental Illness



Physical activity for health



MET: Metabolic Equivalents
1 MET = resting energy

- A healthy level of sleep is ~7 hours/night.
- Some chronic illnesses are associated with disruptions in sleep.

Physical activity for health

1.5+ METs **Physical activity**

1-1.5 METs **Sedentary Behaviour**

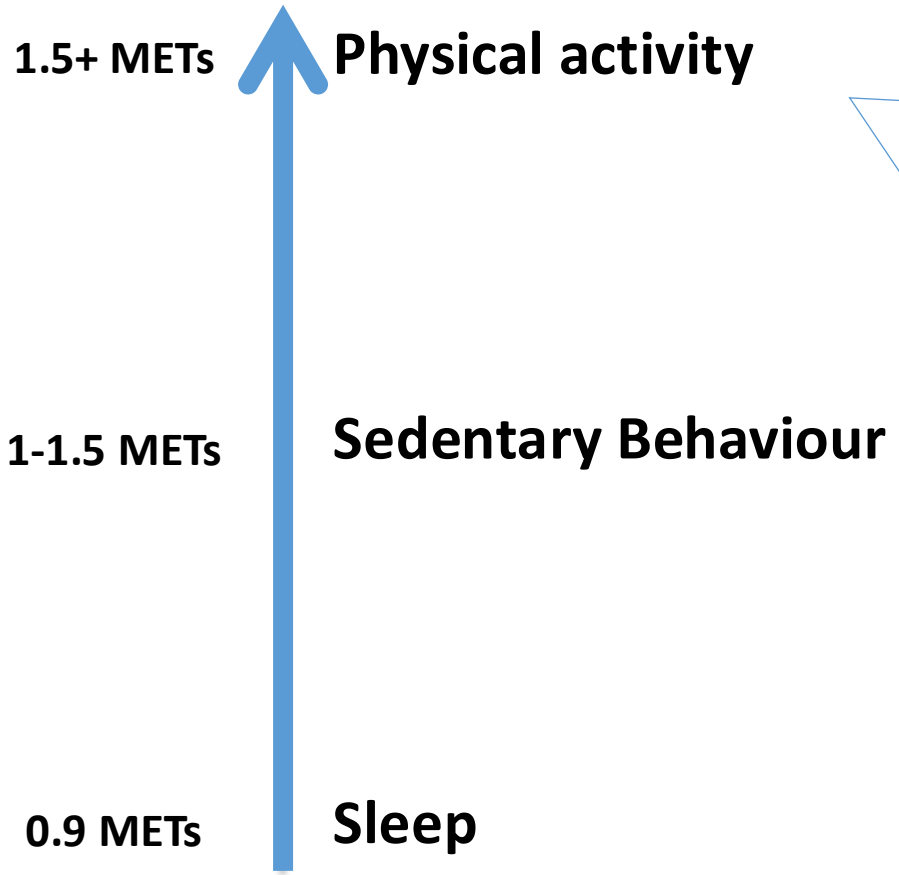
0.9 METs **Sleep**

MET: Metabolic Equivalents

1 MET = resting energy

- Sitting at work
- Sitting or reclining for leisure
- Watching TV
- Computer use
- Driving
- Reading
- Eating

Physical activity for health



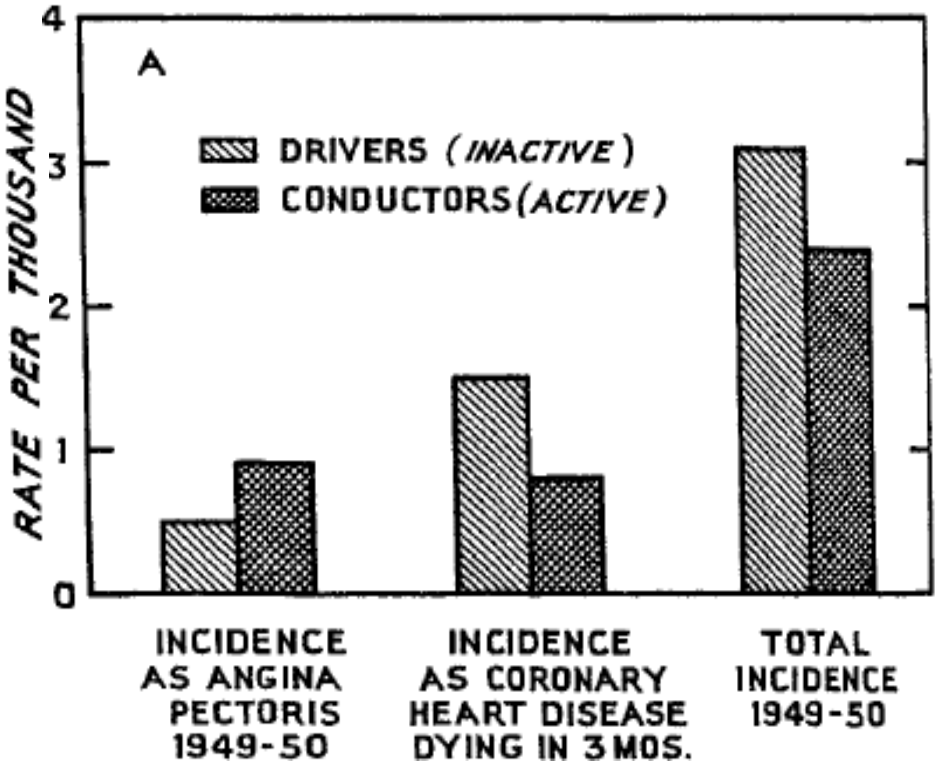
MET: Metabolic Equivalents
1 MET = resting energy

Incidental	**Exercise**
Walking	Walking
Shopping	Yoga
Housework	Running
Gardening	Cycling
Cooking	Sports

"Lack of activity destroys the good condition of every human being, while movement and methodical physical exercise save it and preserve it."
(Plato; ~400BCE)

Modern society catches on…

Sedentary drivers had higher incidence of cardiac events, and a greater proportion were fatal, than physically active conductors.



Exercise and healthy diet can:

↑ Health and wellbeing

↑ Quality of life

↑ Cognition

↓ Disease risk

↓ Depression

↓ Anxiety

↓ Psychotic disorders

People with mental illness have:

↓ Physical activity

↑ Sedentary behaviour

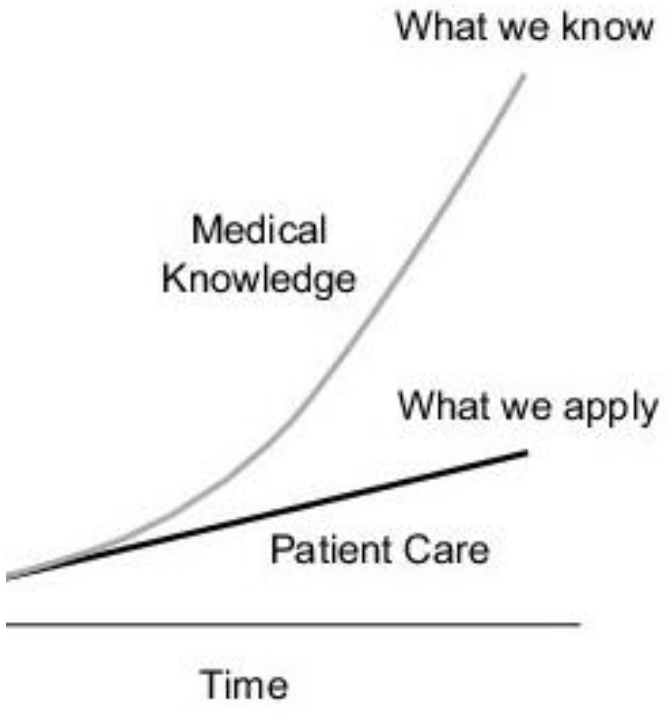
↓ Fitness

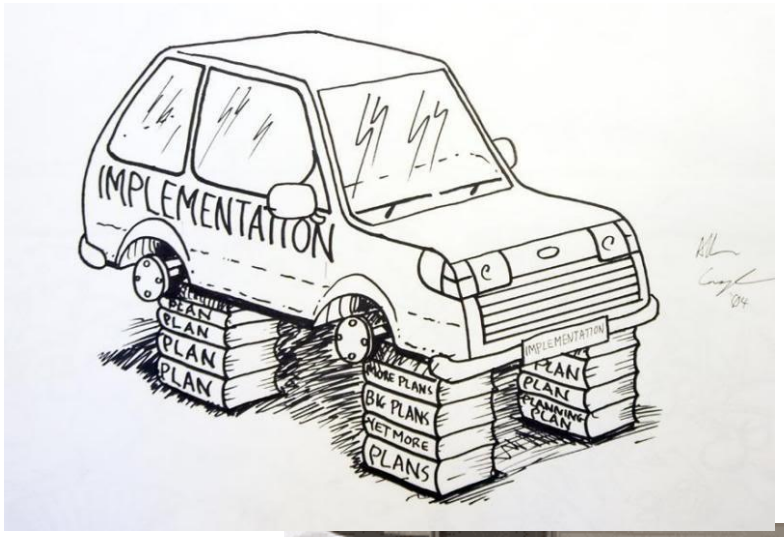
↓ Diet quality: ↑ *proinflammatory foods*, ↓ *intake of fibre, vegetables, fruit, vitamins and minerals*.

People with mental illness want help to live healthier lives:

- Good adherence to exercise and nutrition programs
- Numerous barriers hinder maintenance of healthy lifestyle

We’re facing an implementation gap…..



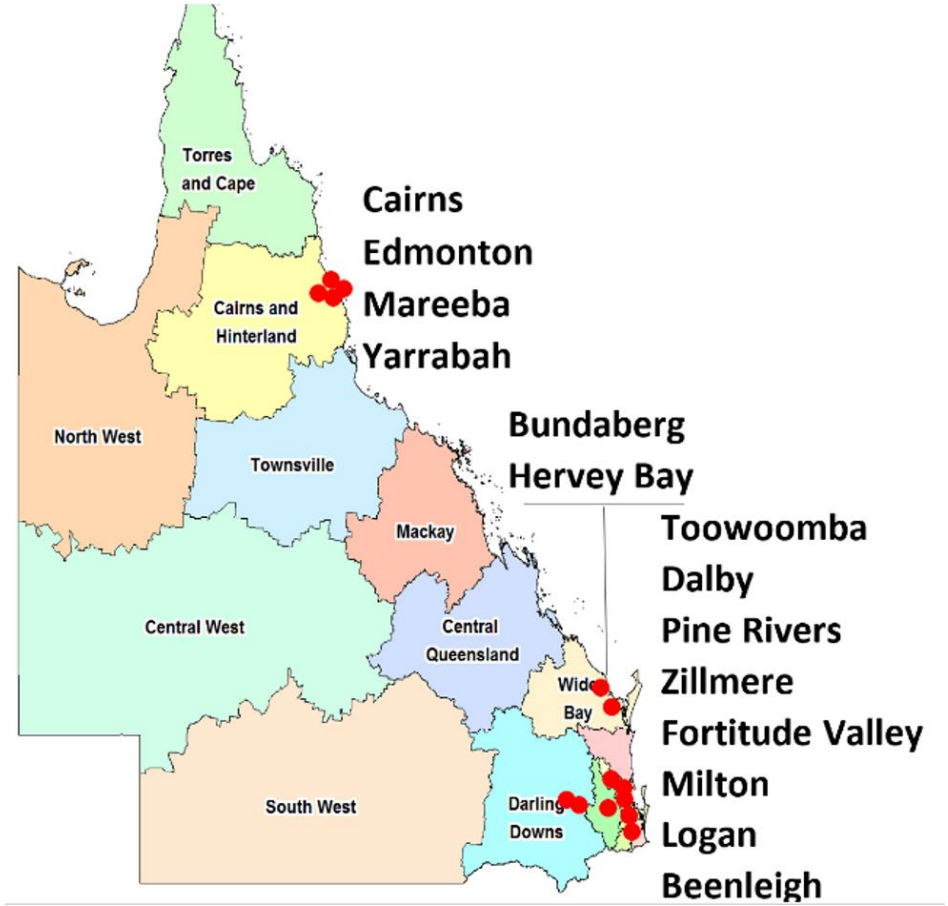


……Programs of translational research are needed.

Research translation

- *Began as 8-week programs* delivered by personal trainers and chefs
- *Progressed to Allied Health* (exercise physiologists and dietitians) with subsequent funding
- *Diverse funding support*: Government funding (PiR, QMHC, PHNs), Research grants (Metro South), Philanthropic (RL Cooper), NDIS
- *Award winning*: Two awards at 2018 Open Minds Mental Health Week Achievement Awards and 2020 Aus Rotary Health Impact award.
- ***Evolving into an service model*** in partnership with Hospital Health Services and community organisations (Cairns & Hinterland HHS, MIND Aus., Neami National)

Results as of April 2019



Inducted
n = **366**

Began
330 (91%)

Completed
231 (70%)

Another ~350 participants inducted since (total n>600)

IT ALL STARTS HERE

PCYC

HEALTHY BODIES HEALTHY MINDS

QIMR Berghofer Medical Research Institute

Participation

Table 2: Health and demographic characteristics of participants at baseline (n=311)		
Age in years (mean, SD)	41	12
Sex	**n**	**%**
Female	150	48%
Missing	*34*	*11%*
Psychological distress [A]		
High distress (score >15)	86	28%
Missing	*34*	*11%*
BMI (kg/m2)		
<18.5	3	1%
18.5 – 24.9	42	14%
25 – 29.9	64	21%
>30	143	46%
Missing	59	19%
Smoking status		
Never/ex-smoker	128	41%
Daily/occasionally	144	46%
Missing	*39*	*13%*

Participation

Self-reported diagnoses		
Number of diagnoses		
One	110	35%
Two or more	167	54%
Missing	*34*	*11%*
Single diagnosis reported		
Psychotic disorder	68	22%
Bipolar disorder	21	7%
Depression	8	3%
Anxiety disorder	8	3%
Substance use disorder	2	1%
Other	2	1%
Multiple diagnoses reported [B]		
Depression	109	35%
Anxiety disorder	103	33%
Substance use disorder	21	7%
Eating disorder	9	3%
Bipolar disorder	33	11%
Psychotic disorder	56	18%
Borderline Personality Disorder	18	6%
Post-traumatic stress disorder	37	12%

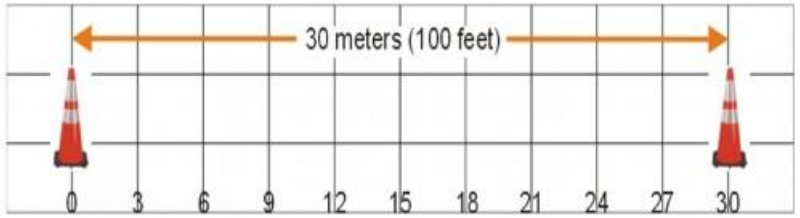
Across the state, participants had:

- Mean age of 41 years
- Roughly half female/male and smoking/non-smoking
- High rates of overweight and obesity
- Most reported multiple mental health diagnoses: psychotic disorders, depression and anxiety most common.

Implementation

Distress pre
12.2 (4.5)

Distress post
9.8 (5.4)

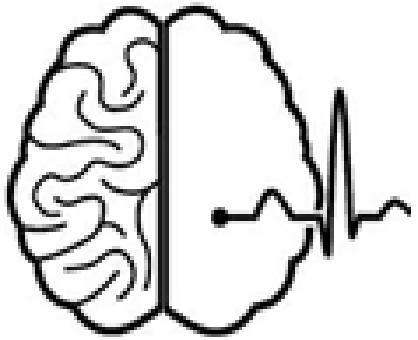


Fitness pre
478m (104m)

Fitness post
531m (121m)

Initiating

Wanting something to do, something to be a part of, something beneficial



Promoting quality of life and recovery in adults with mental health issues using exercise and nutrition intervention

Genevieve Whybird , Zoie Nott , Emma Savage , Nicole Korman , Shuichi Suetani , Emily Hielscher , Gabrielle Vilic , Stephen Tillston , Sue Patterson & Justin Chapman

Personal motivation. Reflecting on their experiences, participants attributed willingness to engage and complete the program to a desire to make changes (in various life domains), the expectation and experience of benefits, and the environment of the program. Participants shared a desire to experience a sense of belonging.

> I felt like I was asked to be a part of something, and I felt it would be beneficial to me …

and another *"just wanted to get out of the house"* most identified specific or more general program-related goals including wanting to increase fitness, lose weight or improve health. Some specifically acknowledged interconnection of physical and mental health.

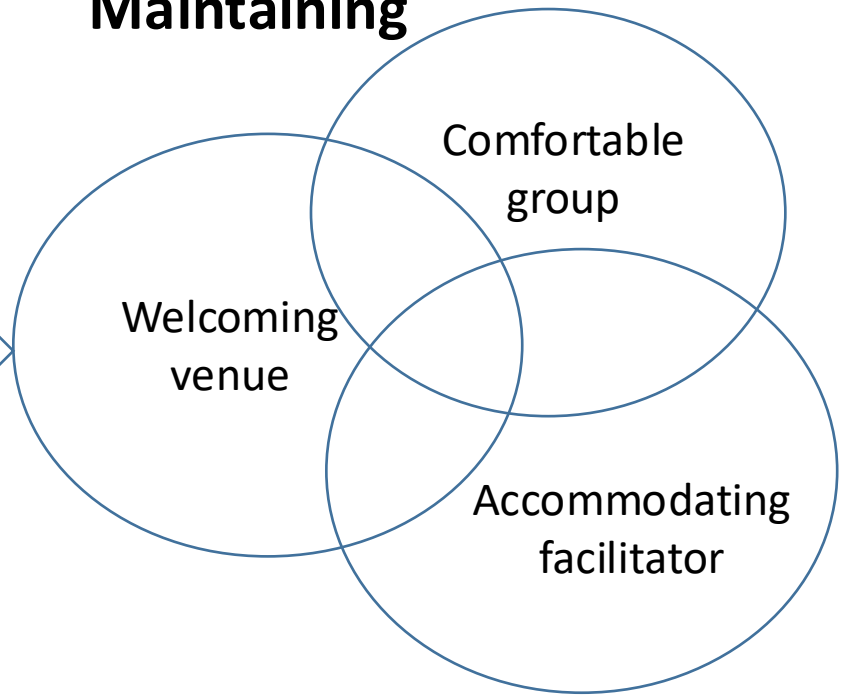
> I've figured that your body is connected to your head so I thought having a healthy body has got to help my head space.

> You feel better, move better, then you look better and then you feel better again

Initiating

Wanting something to do, something to be a part of, something beneficial

Maintaining



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Wellbeing promoting context

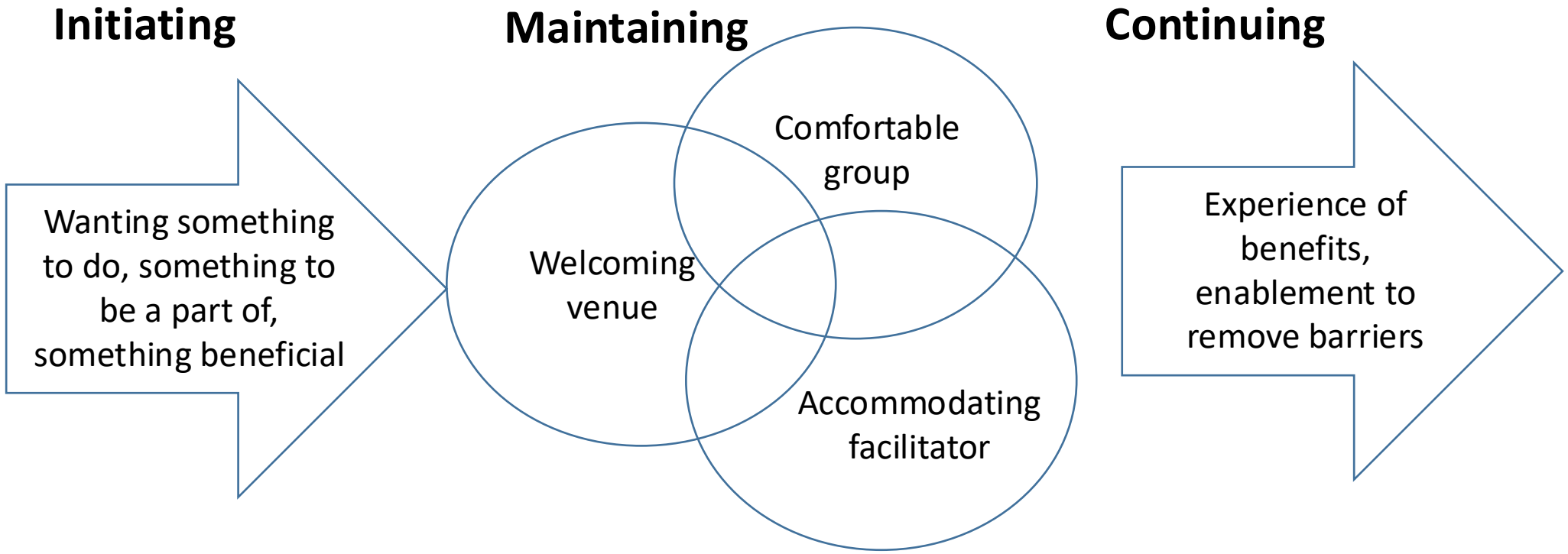
Program environment. While personal motivation was necessary to participation, the environment needed to support engagement. Participants spoke of engaging because they felt *"cared for"*, *"comfortable"*, *"included"*, and part of a *"supportive environment"*. Three main elements influenced the perceived environment either positively or negatively: (i) relatedness to other participants, (ii) interactions at the program venue, and (iii) personalities of program staff.

> I wouldn't have gone by myself because I am just paranoid that people think I'm weird. It was a group of people who also have problems, so it made it less intimidating

Effective communication adapted to *"many different personalities"* promoted the feeling of meaningful engagement and mutual respect.

Whereas private and commercial gyms were chara[illegible] and appearance focused, frequented by "*... wealthy people and fancy gear and social skills*", the community atmosphere was described as relaxed. The relaxed atmosphere was engendered through incidental interactions with staff and gym members at the venue. Participants felt accepted and part of a community: "*the receptionist was very positive ... asked how you were going*". The personal qualities and actions of the program facilitator and personal trainers were commended by participants as central to their positive experience of the program and creating an environment in which they felt comfortable. Qualities valued by participants included 'compassion', 'genuineness', and flexibility which collectively helped participants feel accepted, safe and cared for.

> [the program facilitator] is compassionate, friendly ... is very social and talks to everyone ... sees everyone as human ... smiles a lot when you talk to him and that is important ...



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Participants spoke of realizing during the program that they were sleeping and functioning 'better', of being happier and experiencing improved confidence and self-esteem and increased ability to 'cope' with life's challenges. A sense of achievement, feeling better and 'seeing' change created a virtuous cycle, reinforcing commitment to attending:

> I was more positive and the everyday stressors and anxiety ….anything I worried about was lessened because I was going to gym,

↑ Quality of Life, particularly in *mental health*, *relationships*, *coping* and *self-worth* dimensions

↑ Recovery, in the *hope* dimension

Most participants reported ongoing commitment to exercising, and several noted wide ranging impact of program-related benefits, with one participant stating, "*the program has had a life changing effect*". Participants commonly reported that completion of the program had motivated participation in a range of other activities and generalization of benefits to other life domains. "*… I have been looking to volunteer for a while and never took action, but now I have, and I will start at the end of the month*". For some participants improvements in mood and energy positively affected relationships: "*… every time I went to the gym my productivity for that day was improved, and my relationship with my child … I communicated a lot better because I was using good energy*".

Motivation and physical activity

Median attendance

All participants
63% (IQR=25% to 75%)

'Completers' only
75% (IQR= 50% to 88%)

<u>Attendance to gym outside supervised sessions is low</u>

Motivation which is more *self-determined* is related to longer term maintenance of physical activity.

Intrinsic

Integrated

Identified

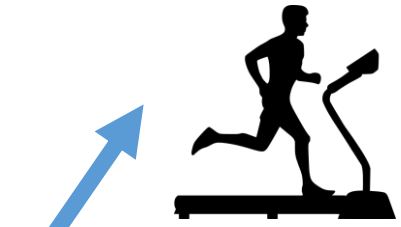
Introjected

External

Few studies have investigated the impact of such interventions on self-determined motivation.

Physically active one way or another

Group 1: Supervised exercise + gym membership



64 inactive consumers randomly allocated

8-weeks

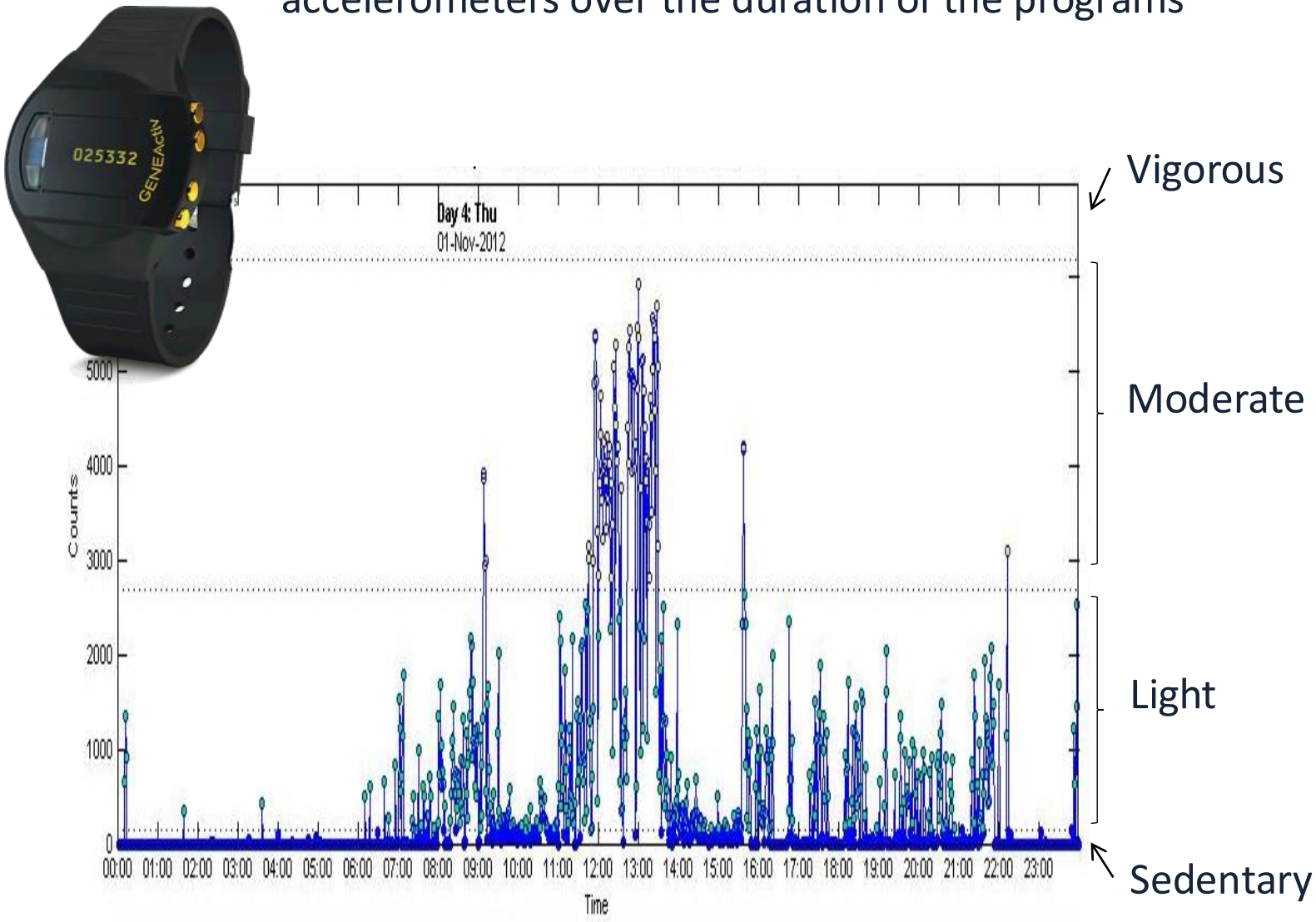
Once / week

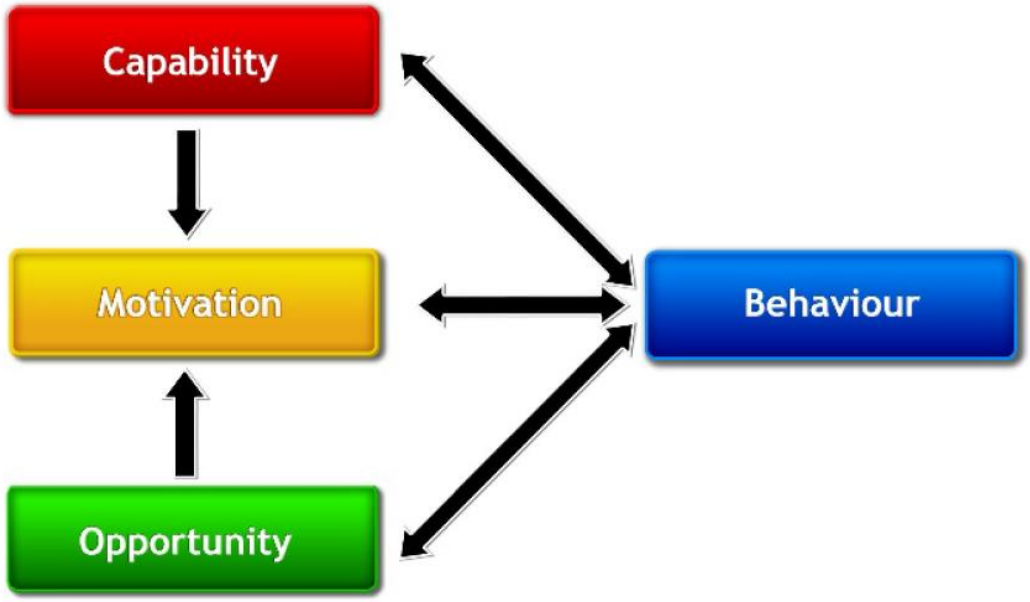
Which group becomes the most active?

Group 2: Motivational coaching + Fitness tracker

Chapman J., Suetani S., Siskind D., Kisely S., Breakspear M., Byrne J., Patterson, S. 2018. *Protocol for a randomised controlled trial of interventions to promote adoption and maintenance of physical activity in adults with mental illness.* BMJ open.

Primary outcome: objectively measured physical activity using accelerometers over the duration of the programs





MOT group:

Motivation (health literacy and self-monitoring)

Opportunity (fitness trackers)

Capability (goal setting, action planning, reflective activities, problem solving)

GYM group:

Motivation (exercise education & recording)

Opportunity (gym membership)

Capability (physical training)

You'll start using some of the cardio equipment to see which ones you like.

Treadmill

Stationary bike

Cable high row

This one is too!

Weight _____

Reps _____

Sets _____

Lunge

Travelling, holding a weight if required.

Weight _____

Reps _____

Sets _____

Week 8: Make your own program

There are thousands of different exercises and lots of variations of each.

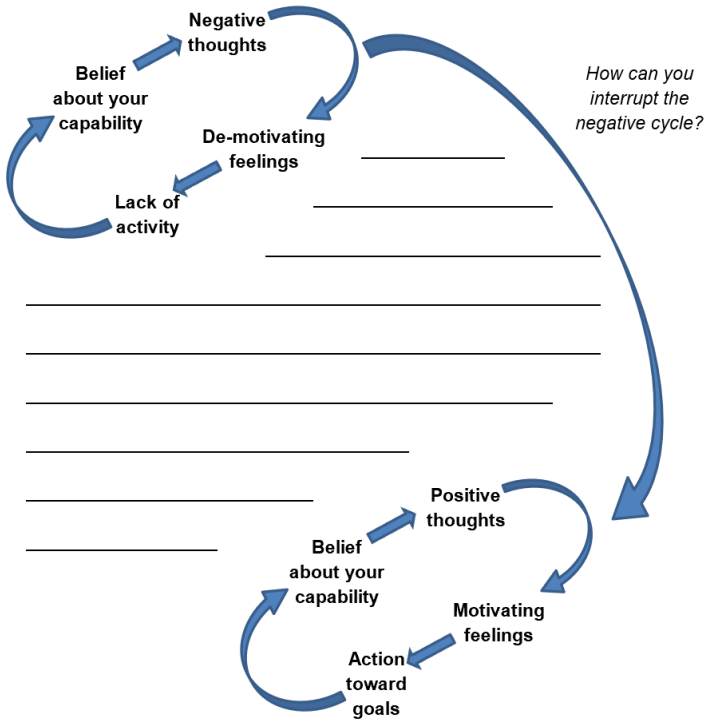
Look back through your exercise diary and see which ones you rated smiley. Choose your favourite 6-8 exercises. Now you can create your own program in the space provided.

Cardio
Upper body
Legs
Core

Week 5: Barriers and Enablers

Our physical activity motivators and barriers are always competing. When our motivation is strong, we do physical activity. When our barriers are stronger, we don't do activity.

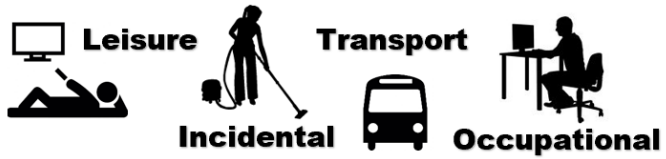
An **enabler** can tip the scales in your favour. Enablers make it easier to do physical activity by reducing barriers. Enablers can be strategies (e.g. get your exercise clothes ready the day before), a pe (exercise buddy), support (group, Brainstorm some enablers – think with your internal and external barri



How can you interrupt the negative cycle?

Week 3: When and how

Daily activities are done in different **domains**:

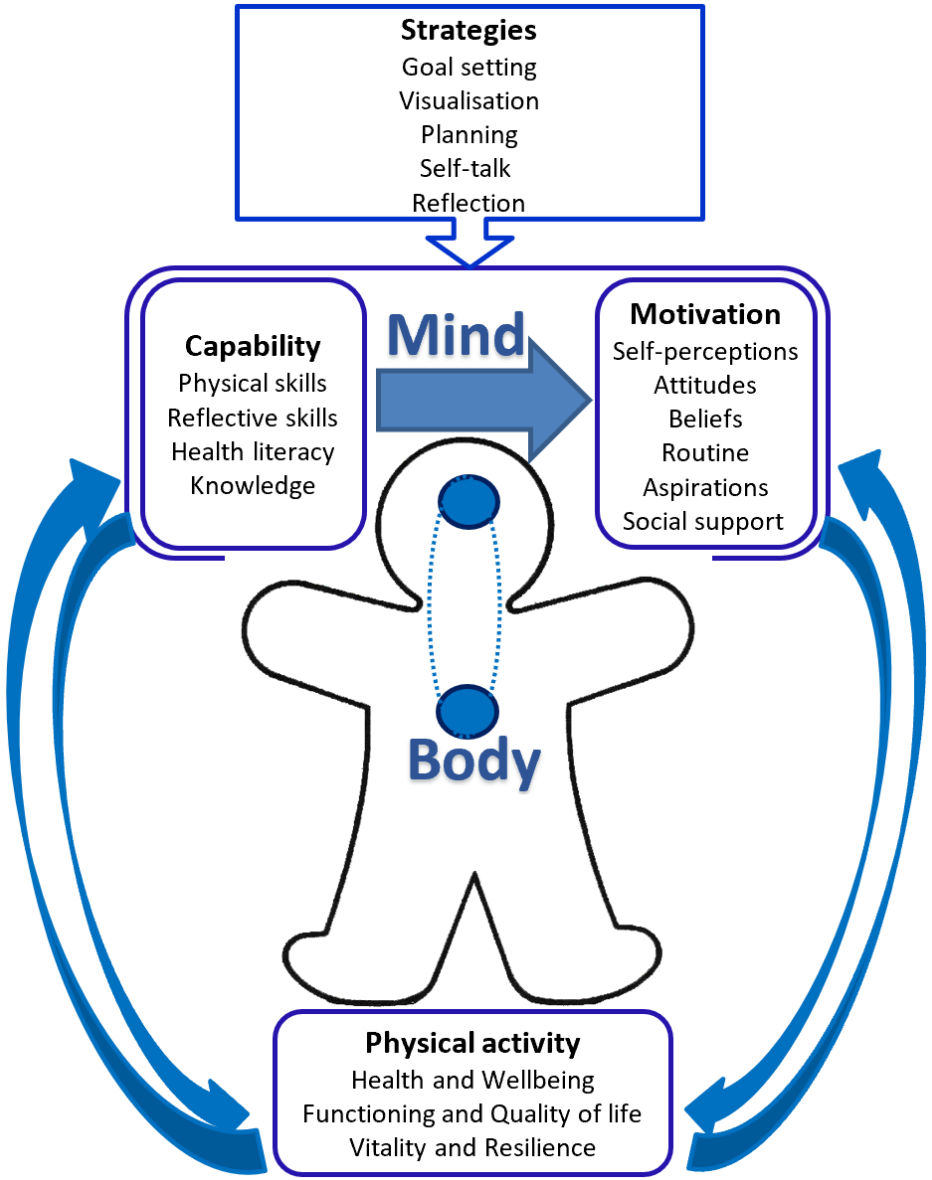


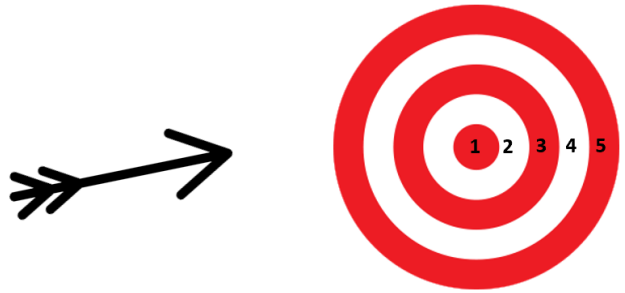
Thinking of an average day, record how much time you spend in each domain, and *what* you typically do (it doesn't have to be physical activity, just record what you typically do).

Leisure
(anything you do in spare time)

Incidental
(Shopping, cleaning, gardening, child-minding, appointments etc)

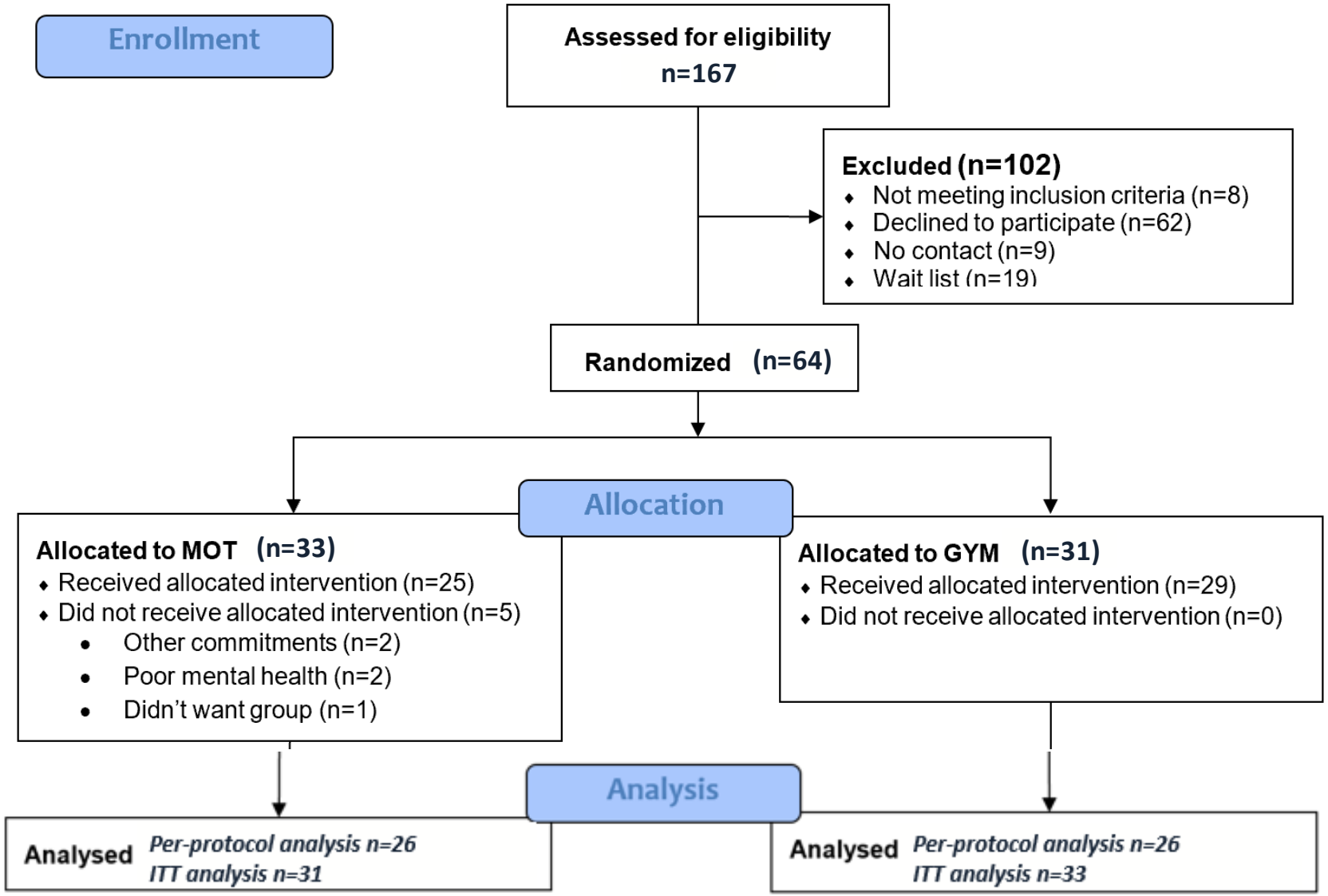
Transport
(bus, train, driving, walking, cycling)





Will you set different goals than in Week 1, or similar?

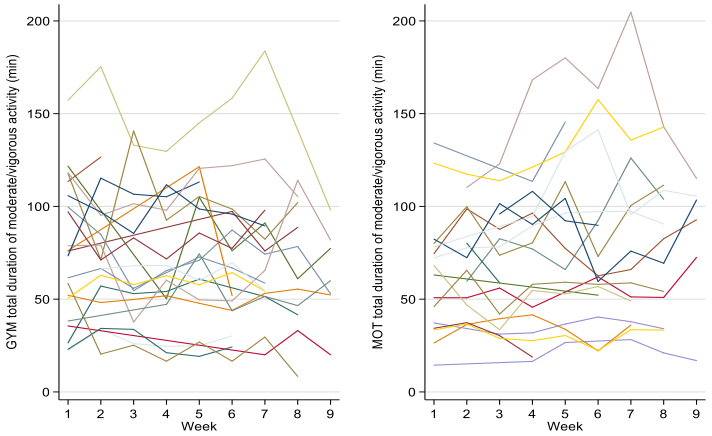
		My own SMART goals
S	Specific	
M	Measurable	
A	Achievable	
R	Rewarding	
T	Realistic Timeline	


Enrollment
Assessed for eligibility
n=167
Excluded (n=102)
Not meeting inclusion criteria (n=8)
Declined to participate (n=62)
No contact (n=9)
Wait list (n=19)
Randomized (n=64)
Allocation
Allocated to MOT (n=33)
Received allocated intervention (n=25)
Did not receive allocated intervention (n=5)
Other commitments (n=2)
Poor mental health (n=2)
Didn't want group (n=1)
Allocated to GYM (n=31)
Received allocated intervention (n=29)
Did not receive allocated intervention (n=0)
Analysis
Analysed Per-protocol analysis n=26
ITT analysis n=31
Analysed Per-protocol analysis n=26
ITT analysis n=33

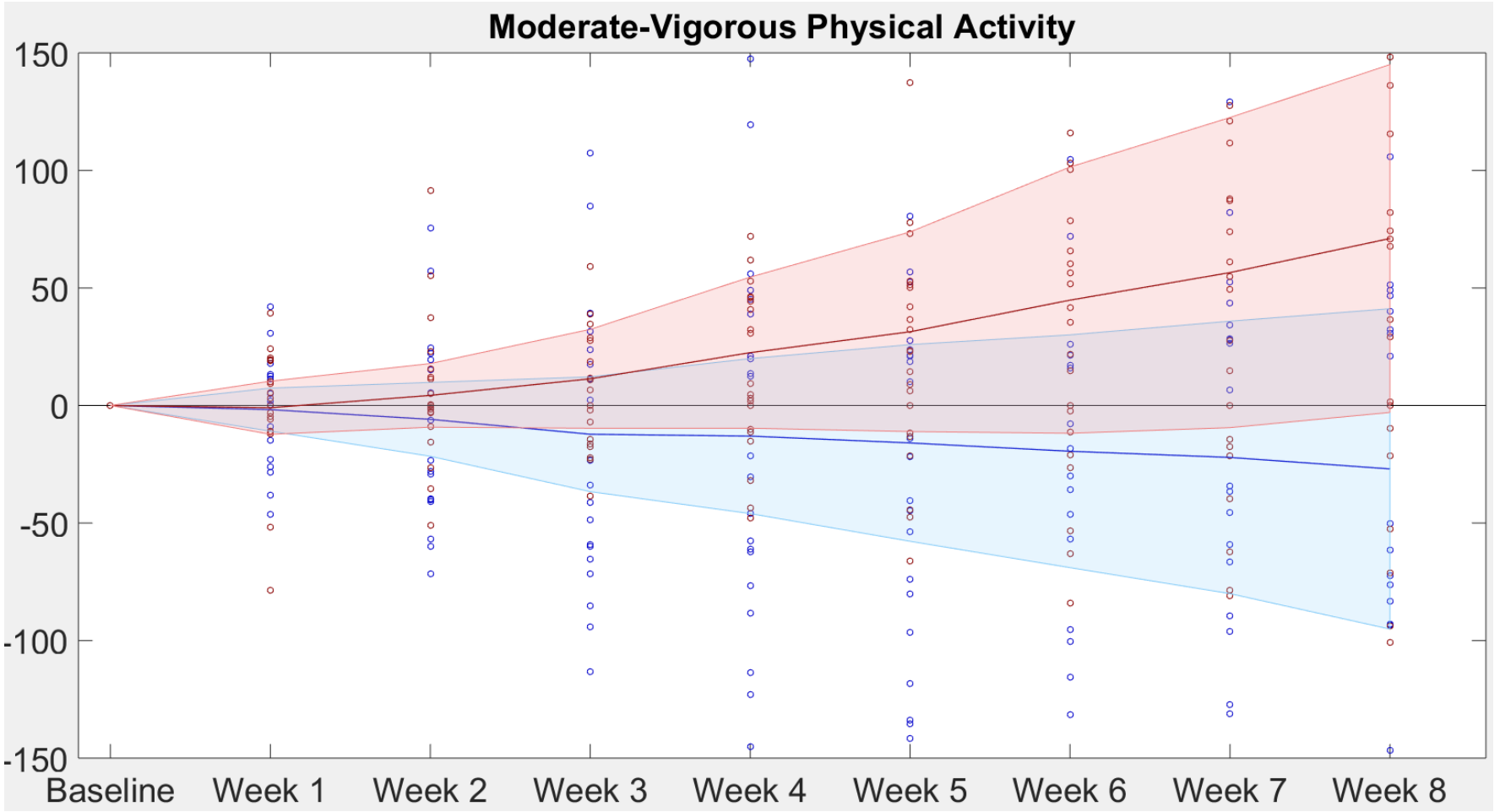
Participant characteristics at baseline (n=64)	
Age (years)	*mean (SD)* = 36 (10) *range* =18-58
Male	(63%)
High distress	(49%)
Employment	
Unemployed / unable to work	(59%)
Student / volunteer / homemaker	(25%)
Full-time /Part-time	(15%)
Smoker *(Daily/occasionally)*	(42%)
BMI (kg/m^2) [d]	
<18.5	(2%)
18.5 – 24.9	(20%)
25 – 29.9	(22%)
>30	(54%)

Psychiatric diagnosis (n=64)	
Number of diagnoses	
1	(71%)
2 or more	(29%)
Single diagnosis	
Psychotic disorder	(47%)
Bipolar disorder	(10%)
Borderline Personality Disorder	(7%)
Depressive disorder	(5%)
Other (Adjustment disorder)	(2%)
Multiple diagnoses	
Psychotic disorder	(14%)
Substance use disorder	(12%)
Bipolar disorder	(8%)
Depressive disorder	(5%)
Anxiety disorder	(5%)
Post-traumatic stress disorder	(3%)
Personality Disorder	(3%)
Other	(14%)

Results



Proportion of accelerometer wear was 55.6% for GYM, and 36.5% for MOT (p=0.68).



Red=Motivation group; Blue=Gym group

Motivation group had 2 mi an

Gyr

No change in self-determined motivation, psychological distress, or self-reported physical activity.

How does this work in the ‘real world’?

- These same interventions were implemented in North Queensland (Cairns, Edmonton and Mareeba)
  - However, participants were not randomly allocated to conditions, they had the choice of programs.
- *Self-reported* physical activity and self-determined motivation were the main outcomes.
- 60 people chose GYM, 35 people chose MOT
  - People who chose MOT had higher waist circumference, psychological distress and external motivation
- Results
  - Psychological distress reduced in both groups
  - Self-determined motivation increased for GYM but not MOT
  - Self-reported PA increased for MOT but not GYM

Seymour, J., Pratt, G., Patterson, S., Korman, N., Rebar, A., Tillston, S., & Chapman, J. (2021). Changes in self-determined motivation for exercise in people with mental illness participating in a community-based exercise service in Australia. *Health & Social Care in the Community*

Conclusions

- Change is incremental
- Successful elements have been (1) evaluation (2) partnership (3) leadership
- Healthy lifestyle programs should be delivered using humanistic and person-centred principles that enhance self-determined motivation.
- Motivational counselling alone can help people increase physical activity levels, but may not be as effective as exercise instruction for enhancing self-determined motivation.
- Practical exercise should be combined with motivational strategies, but motivational strategies alone can be effective and may be preferred by some people.
- Translational research needed in assessing the effectiveness of integrated models for offering physical activity programs.