A call to action: exercise as treatment for patients with mental illness

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Abstract. Mental illness affects the lives of a significant number of Australians. In addition to pharmacological and psychological interventions, exercise has demonstrated benefits for people with mental illness including symptom reduction, improved cardiovascular risk profile and improved physical capacity. Unfortunately, evidence shows that clinician-delivered exercise advice is not routinely offered. This is despite patient acceptability for exercise. This article summarises the recent evidence supporting the prescription of exercise for people with mental illness and offers a model incorporating basic exercise prescription, and referral pathways for specialised advice. Current exercise prescription patterns for people with mental illness may not meet patient expectations; therefore, clinicians should consider exercise referral schemes to increase the accessibility of interventions for people with a mental illness.

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Introduction

Approximately 7.3 million Australians will be affected by mental illness during their lifetime (AIHW 2013). The Institute of Health and Welfare estimates some 15 million, or more than 12% of GP encounters, are mental health-related, with more than 2 million Medicare-subsidised mental health services provided by Australian GPs in 2011–2012 (Britt *et al.* 2012). The economic cost of mental illness is significant, with costs to the Australian health-care system approaching A\$7 billion (AIHW 2013) or ~0.4% of Gross Domestic Product, while the contribution of mental illness to lost productivity in the Australian workforce approaches A\$6 billion (Hilton *et al.* 2010).

There appears to be a strong reliance on pharmacotherapy as the first-line treatment strategy for some mental illnesses. For example, a survey of Victorian GPs (McGarry *et al.* 2005) reported that more than 80% prescribed medication to patients with depression. This trend in prescribing rates of psychotropic medication is consistent with cross-sectional analysis of Pharmaceutical Benefits Scheme (PBS) data showing a 95% increase in antidepressant medication prescriptions between 2001 and 2011 (Stephenson *et al.* 2013).

Australian clinical practice guidelines for the treatment of some mental illnesses, including schizophrenia and related disorders (McGorry *et al.* 2005) and depression (Ellis 2004), advocate for the inclusion of physical activity or exercise. However, these guidelines do not include recommendations on the frequency, intensity, time (duration) or type of exercise intervention (FITT). These parameters, in addition to the level of supervision and delivery mode, may be critical to ensuring positive outcomes for people with mental illness. In contrast, despite some evidence for the effectiveness of exercise to manage overweight and obesity in people with bipolar disorder (Elmslie *et al.* 2001), the most recent Australian guidelines for the management of bipolar disorder (Royal Australian and New Zealand College of Psychiatrists Clinical Practice Guidelines Team for Bipolar Disorder 2004) make no mention of the potential therapeutic benefits of exercise.

Evidence for exercise

There is little doubt that pharmacotherapy or psychotherapy is necessary and beneficial for some patients with mental illness. However, there is growing evidence that exercise may play a

What is known about the topic?

- Evidence exists for the benefits of exercise for people with mental illness, yet the exercise prescribing rate by GPs is alarmingly low.

What does this paper add?

- We show that patients consider exercise to be a highly regarded treatment option and suggest the use of referral schemes to increase the uptake of exercise by mental health consumers.

valuable role in the treatment (Cooney *et al.* 2013; Malchow *et al.* 2013) and prevention (Mammen and Faulkner 2013) of some mental illnesses. For example, Cochrane reviews on exercise and mental illness have confirmed the effectiveness of exercise in the treatment of both depression (Cooney *et al.* 2013) and schizophrenia (Gorczynski and Faulkner 2010). Furthermore, a recent systematic review of the effects of exercise on anxiety disorders (Jayakody *et al.* 2014) concluded that exercise may be effective as a complimentary therapy but less effective compared with traditional pharmacotherapy. Studies also show therapeutic benefits of exercise for other mental illnesses including panic disorder (Wolff *et al.* 2011) and obsessive compulsive disorder (Brown *et al.* 2007; Abrantes *et al.* 2009).

Patients with mental illness are also more likely to be overweight and have higher rates of cardiometabolic disease compared with the general population (Galletly *et al.* 2012). Evidence suggests exercise may reduce cardiometabolic symptoms in patients with mental illness (Caemmerer *et al.* 2012) with few adverse events (Rimer *et al.* 2012) and with exercise adherence rates similar to those observed in the general population (Stanton and Reaburn 2014).

While there are some limitations with the generalisability of the findings of some systematic reviews and meta-analysis, evidence for the efficacy and acceptability of exercise in the treatment of mental illness is mounting. Specific information is lacking when it comes to providing exercise prescription recommendations based on the FITT principle (Morgan *et al.* 2013a); however, a recent review (Stanton and Reaburn 2014) suggested that the exercise parameters likely to lead to positive outcomes for people with depression are not markedly different to those recommended for the general population (Table 1). In particular, the availability of both group and individual activities to which patients may be directed, based on patient preference and accessibility, are likely have similar effectiveness.

GP exercise prescribing rates

Despite the above evidence highlighting the effectiveness of exercise for people with mental illness, little is known about the exercise prescribing habits of Australian GPs for this clinical population. An early study (McGarry *et al.* 2005) reported that approximately three-quarters of GPs surveyed prescribed exercise to only 50% of their patients with depression. A more recent study (Robertson *et al.* 2011) reported that mental illness accounted for only 7% of all conditions for which exercise was

Table 1. Comparison of exercise prescription guidelines for people with depression compared with the general population
NR, not reported

Source	Frequency (no. of sessions per week)	Intensity	Session duration	Mode of exercise	Intervention duration	Individual or group	Level of supervision
Garber <i>et al.</i> 2011 (healthy population)	≥ 5	Moderate	Min 30 min/session or ≥ 150 min/week	Individualised according to preference	Ongoing	NR	Experienced fitness instructor
	≥ 3	Vigorous	Min 20 min/session or ≥ 75 min/week				
			Or a combination to achieve ≥ 500–1000 kCal/week				
Stanton and Reaburn (2013) (depression)	3–4	Low–moderate or patient preferred	30–40 min	Any aerobic activity	9 weeks	Group or individual	Appropriately trained and qualified personnel

prescribed by GPs. Lastly, data from the 'Bettering the Evaluation of Health and Care' initiative (BEACH) suggest that Australian GPs provide exercise counselling at a rate of 1.3/100 encounters (Britt *et al.* 2012). Regardless of the evidence for the efficacy of exercise as either a first-line or adjunct treatment for people with mental illnesses, and, despite GPs rating becoming more physically active above other therapeutic activities (Morgan *et al.* 2013b), the rates of GP prescribed exercise remains low. The reasons for this are not fully understood. Some (Abramson *et al.* 2000; Livaudais *et al.* 2005; Toosi *et al.* 2009), but not all (Frank *et al.* 2000; Rogers *et al.* 2006) international studies report that physicians who engage in higher levels of exercise themselves are more likely to provide exercise counselling to patients. However, a recent systematic review concluded that, in general, lack of time and lack of knowledge are significant barriers to exercise counselling by physicians (Hébert *et al.* 2012).

If these factors are representative of the barriers to exercise prescription by Australian GPs, then the use of incentive-based referral schemes such as the Medicare Enhanced Primary Care scheme, for specialist care in lifestyle management including exercise, would seem a prudent inclusion in holistic patient care.

Exercise referrals

Accredited exercise physiologists (AEPs) are arguably the most relevant allied health professional for Australian GPs and other clinicians to refer patients with mental illness to for exercise guidance. AEPs undergo rigorous clinical training and supervision across several fields including mental health. AEPs are becoming more frequently employed in mental health services including Queensland Health and Monash Health. Approximately one-third of nurses working in mental health report discussing the physical health of mental health consumers with AEPs (Happell *et al.* 2014). The peak body for AEPs, Exercise and Sports Science Australia, recently released a review on exercise and mental illness, and several AEPs who are researchers in the field of exercise and mental illness have made significant contributions to the academic and applied knowledge in the field (e.g. Rosenbaum *et al.* 2011, 2014; Stanton and Happell 2014; Stanton and Reaburn 2014; Stanton *et al.* 2014a, 2014b). However, despite evidence of the effectiveness of referral schemes for people with mental illness (Forsyth *et al.* 2009), a recent survey reported that ~40% of AEPs have never received a GP referral for patients with a mental illness (Stanton 2013).

This contrasts markedly with the use of exercise referral schemes in the UK where ~80% of GPs who have access to exercise referral schemes utilise the resource in the treatment of patients with depression (Mental Health Foundation 2009). However, despite the high use of exercise referral schemes in the UK, the uptake of such schemes by patients is variable due to social and motivational constraints (Donaghy and Taylor 2010).

Patient perspective

With patients becoming increasingly well informed, there is a need to consider their knowledge and expectations regarding

treatment options. For example, Berk *et al.* (2013) recently reported that people with depression view exercise as a highly regarded yet underutilised self-management strategy. Moreover, recent evidence points to the acceptability of GP-prescribed exercise by patients with mild to moderate depression (Searle *et al.* 2011). However, it needs to be recognised that people with a mental illness may present with significant barriers to the uptake of exercise including low motivation, lack of enjoyment and persistent fatigue (McDevitt *et al.* 2006; Carpinello *et al.* 2013). In addition to low motivation and comorbid health conditions, Glover *et al.* (2013) reported people with a mental illness specifically identify medication side-effects and condition-related symptoms as significant barriers to participation in regular exercise. Use of the available referral schemes may help bridge the gap between growing patient expectations and the actions of GPs.

Evidence exercise works: mechanisms of action

The mechanisms explaining the benefits of exercise for people with mental illness are not fully understood. However, one mechanism proposed to explain the mood enhancing effect of exercise involves an increase in brain-derived neurotrophic factor (BDNF) that leads to increased neuronal survival (Lipsky and Marini 2007). As BDNF is also a powerful modulator of several neurotransmitters, this may reduce stress reactivity, thus leading to a reduction in allostatic load (Crews and Landers 1987). Exercise may also directly influence allostatic load by decreasing sympathetic nervous system and hypothalamic–pituitary–adrenal axis activity (Tsatsoulis and Fountoulakis 2006). The resultant reduction of allostatic load via indirect and direct mechanisms leads to enhanced neuronal plasticity and stress tolerance. This potential mechanism of action is not dissimilar to that of antidepressant medication. A detailed review of these pathways is examined in Sylvia *et al.* (2010) and Helmich *et al.* (2010).

A second potential mechanism is through psychological means. Several recent reviews have alluded to the benefits of exercise in reducing anxiety sensitivity, providing distraction to ruminating thoughts, improved body image changes, social reinforcement, experience of mastery, shift of external to more internal locus of control, and improved coping strategies (Stathopoulou *et al.* 2006; Asmundson *et al.* 2013; Zschucke *et al.* 2013).

Practice implications

Evidence is mounting for the efficacy and acceptability of GP-prescribed exercise for patients with mental illness. The recent research evidence strongly suggests a similarity in terms of exercise recommendations to that of other clinical populations or the general population. However, the rates of exercise prescription by GPs or the use of referral schemes for individualised exercise advice for patients with mental illness is generally low. General practitioners should be aware that the benefits of exercise for people with mental illness are similar to that of other chronic and complex health conditions. To overcome the lack of knowledge as a barrier to exercise prescription, GPs may consider accessing Exercise is Medicine® Australia (www.exerciseismedicine.org.au, verified 8 July 2014)

Fig. 1. Referral of patients under the Medicare Enhanced Primary Care Referral Scheme. AEP, accredited exercise physiologist.

or Exercise and Sports Science Australia (www.essa.org.au, verified 8 July 2014).

International guidelines, developed subsequent to those currently in place in Australia, recommend the inclusion of exercise as first-line treatment of patients with mental illness, particularly for those with sub-threshold or mild to moderate depression (National Institute for Health and Care Excellence 2009) or as an adjunct to pharmacotherapy for patients with mild to moderate depression (Ravindran *et al.* 2009). Based on recent evidence, we would consider the routine inclusion of appropriately developed, supervised and individualised exercise interventions to be of value across a range of mental illnesses, with few if any adverse events. In addition, we would consider it timely to amend the current clinical practice guideline developed for patients with depression, schizophrenia and bipolar disorder to include current best practice recommendations for exercise prescription. Lastly, and consistent with other authors (Coombes *et al.* 2013), we would encourage the continued uptake of the Medicare Enhanced Primary Care (MBS Item Number 10953) and other referral schemes, to provide individualised, evidence-based exercise prescription for people with mental illness. To assist GPs with understanding the referral process, a general guide is offered in Fig. 1. Alternatively, GPs may refer to the Medicare website (<http://www.health.gov.au/mbsprimarycare> items, verified 8 July 2014).

Conflicts of interest

None declared.

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