

Editorial

Schizophrenia, poor physical health and physical activity: evidence-based interventions are required to reduce major health inequalities

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**Summary**

In schizophrenia, life expectancy is reduced by 20 years, primarily due to cardiovascular disease (CVD). Physical activity modifies CVD risk factors, but physical activity levels are low in this patient group. We urgently need evidence-based interventions that increase physical activity to improve

health and reduce premature mortality in people with schizophrenia.

Declaration of interest

None.

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Schizophrenia and physical health

The life expectancy of people with schizophrenia is approximately 20 years less than that of the general population and this mortality gap is widening.¹ The predominant causes of this major public health problem are poor physical health and related cardiovascular disease (CVD). Primary prevention of and early secondary intervention for CVD risk factors are essential, yet people with serious mental illness are less likely to access health services, and if they do, are less likely to be investigated and treated. Furthermore, despite regular engagement with psychiatric services, the physical health of people with schizophrenia is still often neglected. The resulting poor health outcomes represent a major health inequality that would not be tolerated in any other minority or marginalised group.

The recent Schizophrenia Commission report described the inadequate management of physical health problems and the neglect of physical health improvement in the healthcare of people with schizophrenia as 'a civil rights issue'.² It recommends early intervention with health promotion programmes to prevent the rapid decline in physical health which often occurs after the onset of schizophrenia.

People with schizophrenia typically lead unhealthy, physically inactive lifestyles,³ with high levels of dietary fat intake, smoking and alcohol use. Cardiovascular disease risk factors – including obesity, type 2 diabetes, hypertension and dyslipidaemia – are highly prevalent in this group and can all be improved by regular physical activity.

Benefits of physical activity

Regular physical activity improves physical and mental health in the general population and can similarly benefit people with

schizophrenia.⁴ A recent review of 10 randomised controlled trials ($n=322$)⁵ demonstrated the beneficial effects of aerobic and muscle strength exercises, progressive muscle relaxation and yoga on positive and negative symptoms, anxiety and psychological distress in people with schizophrenia. Physical activity can also help manage antipsychotic-associated weight gain⁶ and improve physical fitness.⁵ Thus, lifestyle interventions involving exercise should reduce obesity-related cardiometabolic risk in people with schizophrenia.⁷

In the general population, increasing and maintaining physical fitness reduces all-cause mortality, including death from CVD, and increasing physical activity to recommended levels can reduce CVD by 20–35%.⁸ Although not yet verified in schizophrenia, by extrapolation, increasing physical activity should equally reduce CVD in people with schizophrenia, and thereby help to close the widening mortality gap.

Schizophrenia and physical activity

Compared with the general population, people with schizophrenia are more sedentary, with only around 25%⁹ (*v.* approximately 34% in the general population¹⁰) engaging in the UK recommended amount of physical activity, defined as 150 min of moderate-intensity exercise such as brisk walking per week.

Increasing physical activity seems fundamental to prevent and manage many of the physical health problems prevalent in people with schizophrenia (including those relating to vascular risk), to reduce premature mortality and improve well-being.¹¹ Primary and secondary care treatment programmes should therefore target physical activity levels. But challenges exist; the evidence base is insufficient to confirm which behaviour-change methods are appropriate for people with schizophrenia and to identify the optimal means of providing such interventions. We urgently need better clinical trial evidence to determine how best to increase levels of physical activity in this population and reliably inform clinical practice.

The challenge of increasing physical activity in schizophrenia

Complex psychological, social, environmental and biological factors influence the uptake and maintenance of physical activity in the general population and there are many hurdles, such as cost

of and access to exercise/leisure facilities. For people with schizophrenia, additional barriers to engaging with physical activity include lack of social support, positive and negative symptoms, and medication side-effects (including weight gain, excessive sweating and sedation).¹² Although interventions designed to improve health in the general population might be similarly successful in people with schizophrenia, many trials of health promotion programmes specifically exclude people with serious mental illness. Consequently, the evidence base is insufficient to confirm how best to facilitate the uptake and maintenance of physical activity with consideration of the barriers that people with schizophrenia can face.

It has been suggested that flexible, tailored physical activity programmes aligned to psychiatric services and based on behaviour modification principles – action-planning, goal-setting, self-monitoring, social support and gradual change – are more likely to be effective in people with serious mental illness than simple advice and referral to exercise classes/gym sessions.¹¹ However, because the majority of the studies on increasing physical activity in schizophrenia have not been systematically developed from an explicit theoretical underpinning, we do not understand the underlying mechanisms of physical activity behaviour in this patient group. Which behavioural components should we therefore target, and how should we intervene to produce long-term engagement with regular physical activity? The lack of a rational basis from which to design studies and the existence of multiple behaviour-change theories make these questions challenging for researchers to answer.

The nature of the existing evidence

Interventions to increase physical activity can involve simple, free activities such as walking, can be easily incorporated into everyday life and can be cost-effective. Physical activity interventions for people with schizophrenia have been conducted in hospital and out-patient settings and involved aerobic and strength exercise programmes, walking, jogging, yoga and relaxation. Results have generally been positive, showing improvement in physical and/or mental health.⁴ Comparing studies and identifying their active components is however problematic because of their mixed quality, and heterogeneity of intervention, outcome measures and follow-up.⁴

As few extant studies are developed within a theoretical framework and identify which components of behaviour they are targeting and why, they are limited in the extent to which they increase insight into the mechanisms that underlie physical activity behaviour change in this population. Interventions should be based on an understanding of the processes by which health outcomes are achieved, which can and do vary in different populations. Trials of interventions designed specifically for people with schizophrenia (and subsequent systematic reviews) will inform guidelines to help healthcare professionals identify and act on opportunities for behaviour change appropriately and effectively.

Replication of existing physical activity interventions is hampered by the lack of methodological manuals to guide practitioners. Furthermore, the relatively brief nature of most trials and the lack of long-term follow-up limit the conclusions that can be drawn regarding the maintenance of any positive changes in physical activity behaviour over time.

Additionally, there is too much focus on reducing anti-psychotic-associated weight gain as an outcome measure for interventions. Regardless of the usefulness of physical activity as a strategy for managing weight gain, and the beneficial effects of

reducing body mass index in those who are obese, increased cardiorespiratory fitness has been found to be a more important predictor of health outcomes than being overweight.

How might effective physical activity interventions for schizophrenia be designed, implemented and evaluated? One way might be for researchers to utilise the Medical Research Council framework for the development and evaluation of complex interventions to improve health.¹³ Adhering to reporting guidelines might enable transparency such that intervention replication, testing and improvement can occur. Such consistency would produce a phased approach to intervention design by systematically building the evidence base on strong foundations. Use of other tools, such as the RE-AIM (Reach, Effectiveness, Adoption, Implementation and Maintenance) framework,¹⁴ could also assist researchers through the process of translating health promotion research into practice.

Conclusions

Major health inequalities are experienced by people with schizophrenia, including increased morbidity and premature mortality owing to poor physical health and CVD. Active physical health promotion must be routinely included in the care plans of people with schizophrenia and accepted as the responsibility of all healthcare staff.

We urgently need to document the effects of interventions to increase physical activity in schizophrenia and build the evidence base. Furthermore, we need to identify which core behavioural components to target in order to translate research into effective clinical practice. This requires systematic approaches to intervention development that are explicitly underpinned in behaviour-change theory and are manualised to allow for replicability and testing. Only then will we be able to materially improve the health and well-being of people with schizophrenia and begin to reduce the profound, yet seemingly ignored, health inequalities that they continue to suffer.

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Electricity rendered useful for mental illness: tribute to Richard Lovett

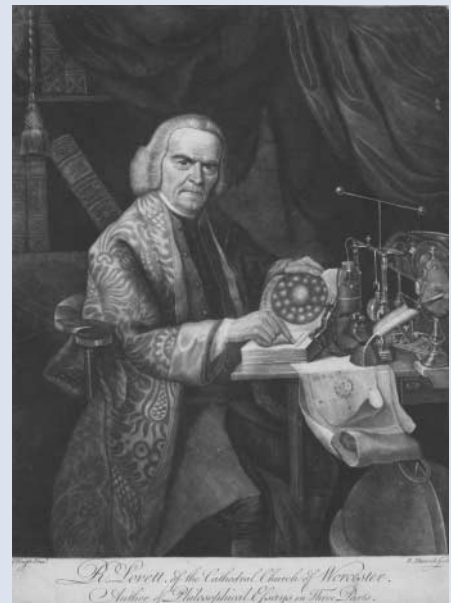
Jesús Pérez, Gianni L. Faedda and Ross J. Baldessarini

A young gentlewoman of the parish of Clifton . . . had hysterics . . . which . . . deprived her of . . . memory and understanding, and . . . continued for a considerable time, notwithstanding the best advice of two eminent physicians. In this melancholic state she was brought to Worcester, to try the effect of electricity . . . As the head was the part affected, I guided the fire chiefly to that part, in as plentiful a manner as I well could, and caused it to pass quite through several times each day, so long as she stayed in town, so though scarce a week, yet it seemed to have the desired effect; for although, before she came to Worcester, she could not remember half an hour to an end, yet, soon after her return home, she could remember most remarkable things she saw done in Worcester; and not only her memory, but her understanding also returned, and she very soon became perfectly well. The operation was sometimes shocks, sometimes drawing off sparks from the head.

Richard Lovett, 1756

Understanding the nature and properties of electricity was a prominent target of experimental investigation in mid-18th-century England. Investigators interested in electricity pursued a range of practical and philosophical interests; they included natural philosophers, physicians, apothecaries, and instrument makers. From different perspectives, they addressed the composition of electric fluid and its role in the economy of nature, including the human body. The phenomenon of electricity proved to be a fertile ground for self-styled 'medical electricians' who spread new applications of electricity, properly tamed, for therapeutic intent.

Richard Lovett (1692–1780), a lay clerk at Worcester Cathedral, markedly enhanced the vitality and diffusion of this discovery, making it accessible to all social strata of society. After years of practice, Lovett published the first English textbook on medical electricity, *The Subtil Medium Prov'd* (1756). His rhetorical term for medical electricity, 'electricity rendered useful', was inspired not only by the flourishing world of public demonstrations and reports in popular magazines, but also by both ancient and recent experimental philosophy on the 'electric fire of the ether', based notably on theories proposed by Isaac Newton. *The Subtil Medium Prov'd* contained descriptions of individuals suffering from various clinical disorders claimed to be cured with electrotherapy. These included what appears to be the first reported systematic use of electric shock to treat a mental disorder.



Engraving by R. Hancock after a painting by I. Wright of Richard Lovett. Image published with permission of the Science Museum/Science and Society Picture Library, London.