**Promoting weight loss in people with schizophrenia: what do we still need to learn before implementing lifestyle interventions?**

**Summary:** Holt et al show that a lifestyle intervention did not reduce weight in people with schizophrenia. The STEPWISE trial casts a critical focus on the challenges of improving physical health in people with schizophrenia. The trial underpins efforts to maintain momentum to overcome unacceptable health inequalities in this population.

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Mortality rates in people with schizophrenia and schizoaffective disorder are at least two times greater than the rate in the general population with life expectancy reduced by up to 20 years ([1](#_ENREF_1)). Cardiovascular disease accounts for the majority of premature death in this population. The path to premature cardiovascular disease may be heralded by the onset of psychosis and the initiation of antipsychotic treatment, which is associated with aggressive early weight gain averaging 12 kg in the first 24 months of treatment, and other metabolic disturbances which mean that by age 40, people with schizophrenia have a 3-fold increased rate of metabolic syndrome ([2](#_ENREF_2)). Obesity is twice as prevalent in this population and contributes to excess mortality from cardiovascular disease ([3](#_ENREF_3)). Additionally, unhealthy lifestyles owing to sedentary behaviour and poor diet also contribute to high rates of obesity and risk of weight related conditions such as diabetes, hypertension, and dyslipidaemia in people with schizophrenia.

Reducing the so-called mortality gap in people with serious mental illness is a major public health policy goal. NHS England has looked to mainstream the cause of people with serious mental illness by signalling that by 2020/21 at least 280,000 people living with illnesses such as schizophrenia should have their physical health needs met by increasing early detection and expanding access to evidence-based physical care assessment and NICE recommended lifestyle interventions ([4](#_ENREF_4)). However much of the guidance targeted at reducing physical risk factors and promoting behaviour change is not tailored to meet the needs of people with serious mental illness and there is considerable scope to enhance the evidence base to support implementation of effective lifestyle interventions.

**Findings from previous research**

There is unequivocal high quality evidence that weight reduction interventions with or without advice for increasing physical activity and/or attendance at a physical activity programme can lead to significant weight loss and reduce all cause mortality in the general population with obesity ([5](#_ENREF_5)). Furthermore lifestyle interventions to support dietary change and physical activity have proven efficacy in reducing weight and sustaining weight loss in high risk groups such as people with impaired glucose regulation (a precursor to diabetes), and this evidence underpins roll out of national diabetes prevention programmes.

However evidence that such approaches are effective in reducing weight in people with serious mental illness is mixed. Broadly, non-pharmacological interventions that include nutritional and/or exercise interventions and cognitive and behavioural therapy have been shown in meta-analysis (17 studies; n=810) to effectively reduce weight and body mass index in people with schizophrenia-spectrum disorders, with benefits for weight enduring for 12 months ([6](#_ENREF_6)). More recently Naslund et al have shown in meta-analysis (17 studies; n=1968) that lifestyle interventions that included standard dietary advice and instruction and encouragement to regularly increase physical activity were associated with small but significant treatment effects for weight loss over the short term (≤6 months) and longer term (≥12 months) ([7](#_ENREF_7)). However only two of the six trials included in the review by Naslund et al review which measured outcomes at 12 months demonstrated significantly positive effects for weight loss. These two trials – the ACHIEVE and STRIDE trials – were conducted in the United States and offered intensive lifestyle interventions that drew on behavioural approaches known to be effective for weight loss and reducing cardiovascular risk in the general population, such as the DASH (Dietary Approaches to Stop Hypertension) diet. By contrast a recent Danish trial (n=428) that tested a similarly intensive programme of lifestyle coaching plus care coordination in people with schizophrenia-spectrum disorder and abdominal obesity failed to show any benefit over 12 months in 10-year cardiovascular disease risk or for any secondary outcomes, including weight reduction. This suggests that individual behaviour change interventions might not always be the most appropriate and effective way to support weight loss in vulnerable populations with schizophrenia ([8](#_ENREF_8)).There are other interventions that can be considered for this population, either as alternatives or in combination with a lifestyle approach. These include metformin, which lessens weight-gain and metabolic disturbance in people with serious mental illness and is already recommended by NICE for the prevention of diabetes when other measures prove unsuccessful. Selecting an antipsychotic medication associated with fewer metabolic side effects may also be considered when appropriate, although this needs to be balanced against the need to manage psychotic symptoms ([9](#_ENREF_9)).

Taking their lead from the success of the US trials and recognising that lifestyle interventions are recommended for people taking antipsychotics, a UK team led by Professor Richard Holt took up the challenge to develop and test a structured education lifestyle programme (STEPWISE) for weight loss in people with psychosis that stood the greatest chance of being implementable in routine care.

**Findings from Holt *et al***.

In this issue Holt *et al* describe the results of a randomised controlled trial of STEPWISE, an intervention that included an initial four weekly facilitated foundation course of group based activity focusing on identifying and encouraging (using non-judgmental styles) ways to achieve dietary and physical activity goals. One to one telephone support was used throughout the intervention period lasting 12 months. Booster sessions in groups took place at 4, 7, and 10 months, with total contact time comparable to that given in NHS Diabetes Prevention Programmes. Participants had schizophrenia, schizoaffective disorder, or first episode psychosis with a mean age of 40 years and were overweight at the point of recruitment. Importantly the design of the intervention adopted gold standard approaches including co-design with service users and prototyping, piloting and iterative redesign. The intervention drew on the ‘Let’s Prevent Type 2 Diabetes’ programme developed by the Diabetes Education and Self-management for Ongoing and Newly Diagnosed (DESMOND) team and embraced established psychological theory about behaviour change with a focus on food and physical activity, psychological factors that underpin motivation to manage weight, and the challenges of living with psychosis. The control group received standard printed advice about lifestyle and the risks of weight gain.

Participants were randomly allocated to the lifestyle intervention or the control group and followed-up at 12 months for change in weight (kg). At 12 months there was no difference in mean weight reduction between the intervention and control groups, nor was there any difference in weight within either group, suggesting that there was no sustained change in diet or physical activity. While this result is disappointing and unexpected given the track record of previous weight loss interventions in people with serious mental illness it might partly be explained by the fact that the STEPWISE trial population was recruited from mental health services outside of primary care and ≥50% were treated with medications that have a high risk of weight gain (i.e. Clozapine and Olanzapine). Additionally patients recruited from this context may also have more severe symptoms and are potentially more likely to have symptoms that persist and reoccur more commonly than the 20-30% of people with serious mental illness supported in primary care only, or those who have limited contact with their mental health provider. Contrarily, these factors might have accounted for a patient population that was most likely to benefit and most likely to be motivated to achieve weight loss.

Given that fidelity was good (with more sessions reported as facilitative than didactic) and intensity was driven by the need to offer an intervention likely to be scalable in routine settings it is perhaps instructive to consider whether providing support to make lifestyle changes at the point of diagnosis of psychosis may prove more effective. The majority of STEPWISE participants had well established psychosis (only 6% of trial participants had been receiving treatment for less than 1 year) and the intervention targeted people who were already overweight. There is growing evidence that lifestyle interventions are acceptable to people with first-episode psychosis, with goal setting, social opportunities and progress monitoring being especially valued, even in the face of no weight loss ([10](#_ENREF_10)). However no large-scale lifestyle intervention trial has been conducted addressing cardiovascular risk in this population. Critical here would be the need for facilitators to be skilled in personalising interventions and there is possibly scope to build in use of digital applications to support progress monitoring and feedback.

**Conclusion**

There is a risk that as lifestyle interventions are scaled up for the general population, we will see widening inequalities for people with serious mental illness unless, as Holt et al suggest, we continue to take up the challenge of improving their physical health and associated poor lifestyle. The STEPWISE trial makes an important contribution to maintaining a critical focus on efforts to improve the physical health of people with serious mental illness which remains a major challenge of our times.

**Declaration:**

No authors have any conflicts of interest to declare.

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