Lifestyle interventions for adults with serious mental illness: a systematic literature review  

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**CRD summary**
The authors concluded that lifestyle interventions adapted to people with serious mental illness show promise in increasing weight loss and reducing some risk factors for metabolic syndrome. These conclusions reflected the evidence presented, but differences between studies, potential for publication bias and limited reporting of outcomes make the reliability of the conclusions uncertain.

**Authors' objectives**
To examine the effect on physical health of lifestyle interventions for adults with serious mental illness.

**Searching**
MEDLINE, PsycINFO, PubMed and The Cochrane Library were searched for studies in English published between 1980 and 2010 in peer-reviewed journals; search terms were reported. Reference lists of articles, book chapters and government reports were searched for additional articles.

**Study selection**
Studies of lifestyle interventions conducted in USA for adults diagnosed or classified as having serious mental illnesses were eligible for inclusion. Included studies had to evaluate physical health outcomes such as weight and body mass index (BMI) or health promotion outcomes such as self-efficacy and health-related quality of life.

The included interventions comprised exercise and information about diet and health promotion. Most interventions incorporated behavioural strategies that included goal setting, skills training, motivational counselling, stress management, assertiveness training, rewards or tokens of reinforcements, stimulus control, risk/benefit comparisons, relapse prevention and teaching to address motivational impairment and cognitive deficits associated with mental illness. Interventions were individual and/or group sessions. Intervention durations ranged from 30 minutes to 52 weeks. Delivery of interventions varied between studies. Intervention settings included in-patient units, day treatment programmes, outpatient clinics, residential facilities, clubhouses and vocational agencies. Secondary outcomes evaluated were changes in metabolic syndrome risk factors.

The average age of participants ranged from 32 to 54 years. The proportion of female participants ranged from 4% to 77%. Mean BMI at baseline was 33.6 (which indicated obesity) and mean weight at baseline was 214 lbs. Just over half the studies included only participants with schizophrenia or schizoaffective disorders. Other studies included participants with various disorders that included major depression, bipolar disorder, alcohol dependence and anxiety disorders. Where reported, more than half of the participants were non-Hispanic white. Others were African American, Hispanic, Asian American, or from other racial/ethnic groups. Only one study included non-English-speaking participants.

Two authors selected studies for inclusion.

**Assessment of study quality**

Validity was assessed using an adapted version of the Methodological Quality Rating Scale (MQRS) that included treatment drop-outs/retention rates, assessor blinding, follow-up assessments, use of manualised interventions, details of intervention and study procedures. The maximum possible score was 17, which denoted high quality.

Two reviewers independently assessed validity. Differences were resolved through consensus.

**Data extraction**

A data extraction form based on recommendations by Lipsey and Wilson was used to extract data on outcomes.
The authors did not state how many reviewers extracted data.

**Methods of synthesis**
Studies were grouped by design. Data were combined in a narrative synthesis.

**Results of the review**
Twenty-three studies were included in the review (n=1,117 participants): nine randomised controlled trials (RCTs), five quasi-experimental studies and nine single-group studies. Sample size ranged from eight to 309. The mean study validity score was 9.1 out of a maximum 17 points: RCTs scored from 6 to 12 points, quasi-experimental studies scored from 6 to 11 points and single-group studies scored from 5 to 10 points. Only four studies (all RCTs) reported blinding of outcome assessors.

**Weight Loss Programmes (18 studies):**
Four of seven RCTs reported statistically significant weight loss for the intervention group compared to control groups. Three RCTs found no significant differences between groups.

Three of four quasi-experimental studies reported statistically significant weight loss for the intervention group compared with control. One study reported no significant differences between groups.

Three single-group studies reported statistically significant weight loss for intervention programmes compared to control. Four studies reported no statistically significant differences between control groups and weight management programmes (two studies), a health promotion programme (one study) and an exercise programme (one study).

**Metabolic syndrome (13 studies):**
Significant improvements were reported for intervention groups compared to control groups for systolic blood pressure (three studies included one RCT), diastolic blood pressure (two studies), HbA$_1C$ levels (two studies included one RCT), triglyceride levels (one RCT) and central adiposity levels (four studies included one RCT).

**Authors' conclusions**
Lifestyle interventions adapted to people with serious mental illness showed promise in increasing weight loss and reducing some risk factors for metabolic syndrome. The under-representation of people from racial or ethnic minority groups in this literature limited its generalisability.

**CRD commentary**
The review question was clear with broadly defined inclusion criteria. Several relevant sources were searched. The limitation to studies published in peer reviewed journals meant there was potential for publication bias. The review included only studies in English that were conducted in USA, so the generalisability of the results to other countries was unknown. Appropriate methods were used to reduce reviewer error and bias for study selection and validity assessment; it was unclear whether similar methods were used for data extraction. Validity was assessed using a quality score, but components of the aggregated score were lacking (an appendix of validity assessment details was unavailable). A narrative synthesis was appropriate given the differences between studies in terms of study designs and reported outcomes. The authors reported that few of the included studies controlled for confounding of use of antipsychotic medications on health outcomes. Therefore, it was unclear to what degree the results could be attributed to the lifestyle interventions. Few details of outcomes were reported. Some results were reported without supporting data or levels of statistical significance and this made it impossible to verify the findings.

The authors' conclusions reflected the evidence presented. Differences in study design and outcomes, potential for publication bias and limited reporting of outcomes and validity assessment make the reliability of the conclusions uncertain.
Implications of the review for practice and research

Practice: The authors did not state any implications for practice.

Research: The authors stated that further robust research was needed to assess the cultural congruence, cost effectiveness, implementation and sustainability of lifestyle interventions for adults with serious mental illness in real-world community settings. Future RCTs should consider blinding of assessors to reduce bias, be adequately powered to examine the effects of risk factors and control for confounding medication effects.

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