

# Best Evidence Summaries of Topics in Mental Healthcare

## **BEST** *in* **MH** *clinical question-answering service*

### Question

In people with mental health problems detained in prison or secure services, or admitted to psychiatric hospital, how effective are any weight loss interventions compared with treatment as usual for the reduction of overweight or obesity?

### Clarification of question using *PICO* structure

*Patients:* People with mental health problems detained in prison or secure services, or admitted to psychiatric hospital  
*Intervention:* Any weight loss interventions  
*Comparator:* Treatment as usual  
*Outcome:* Reduction of overweight or obesity

### Plain language summary

A few randomised controlled trials have studied weight loss treatments for psychiatric inpatients in the form of antipsychotic medication replacement, health promotion, physical activity programmes and diet control. No clear results have emerged, and most studies were not of high quality. No research at all has looked at people with mental health problems detained in prison.

## **Clinical and research implications**

No definite clinical implications may be made based on the available evidence. The authors of a systematic review suggested that switching to an antipsychotic medication which is less likely to cause weight gain and metabolic problems may be beneficial, but that better designed trials with adequate power would provide more convincing evidence to use this approach as an intervention strategy. Trials evaluating health promotion, dietary control and physical activity interventions yielded mixed results, and similarly, higher quality trials are required to more conclusively evaluate such interventions. Of note, no relevant high quality research has been conducted in prison, nor high secure mental health services.

## **What does the evidence say?**

### ***Number of included studies/reviews (number of participants)***

One systematic review (SR) (Mukundan et al. 2013) and four randomised controlled trials (RCTs) (Hjorth et al. 2014; Kim et al. 2014; Ranjbar et al. 2013; Wu et al. 2007) met the inclusion criteria for this BEST summary.

### ***Main findings***

The SR by Mukundan et al. (2013) assessed the effects of switching antipsychotic medication as a strategy to reduce or prevent weight gain in people with schizophrenia who have neuroleptic induced weight or metabolic problems. Four RCTs were included in this review. The authors reported non-significant differences in mean weight loss when people were switched from olanzapine to other medications (aripiprazole or quetiapine) compared to those who remained on it (2 RCTs,  $n = 287$ , CI  $-3.97$  to  $0.08$ ). Non-significant differences were also observed for average body mass index (BMI) (1 RCT that evaluated switching from olanzapine to quetiapine,  $n = 129$  MD  $-0.52$  CI  $-1.26$  to  $0.22$ ), and waist circumference (1 RCT that evaluated switching from olanzapine to aripiprazole,  $n = 173$ , RR  $0.92$  CI  $0.76$  to  $1.11$ ). The authors also reported that people were less likely to leave the study early if they remained on olanzapine compared to switching to quetiapine or aripiprazole.

One RCT evaluated the effectiveness of ranitidine on attenuating or preventing olanzapine-induced weight gain in 52 inpatients with schizophrenia, schizoaffective and schizophreniform disorders (Ranjbar et al. 2013). After 16 weeks, BMI and weight was found to increase in both treatment and placebo groups over the 16 weeks of the intervention, although weight gain was slightly attenuated in the patients who received ranitidine.

A cluster RCT by Hjorth et al. (2014) evaluated the efficacy of a health promotion programme to improve physical health in 84 long-term-treated Danish psychiatric patients. After 12 months, no significant differences between the intervention and control (normal treatment) were observed for any of the outcomes evaluated (waist circumference, BMI, % body fat). The authors, however, found an increase in waist circumference in the control group compared to baseline ( $+ 2.17$  cm), and a small reduction in the intervention group compared to baseline ( $-0.75$  cm). Linear regression analyses, controlling for the effect of cluster randomisation, sex, age, and body fat, showed a

difference in the change of waist circumference between the intervention and control groups of -3.1 cm ( $p=0.018$ ).

One RCT evaluated the effects of a 12-week aerobic exercise programme on colonic transit time, as well as body weight and BMI, in 42 Korean psychiatric inpatients (Kim et al. 2014). After 12 weeks, no significant differences were observed between the intervention and control (ordinary daily activity) groups for any measure of body size including body weight, BMI, lean body mass, body fat, thigh circumference, and waist circumference.

The trial by Wu et al. (2007) evaluated the effects of dietary control and physical activity among 53 Taiwanese obese inpatients with schizophrenia who were treated with clozapine. After 6 months, significant differences between the intervention and control group (control not specified) were observed for BMI, body weight, waist and hip circumferences, but not for waist-to-hip ratio or body fat.

### ***Authors' conclusions***

Mukundan et al. (2013) concluded that "switching antipsychotic medication to one with lesser potential for causing weight gain or metabolic problems could be an effective way to manage these side effects, but the data were weak due to the limited number of trials in this area and small sample sizes."

Ranjbar et al. (2013) concluded that the addition of ranitidine to olanzapine treatment does not prevent weight gain in the short-term, but more research is needed to assess long-term effects given a slight change in trend between the ranitidine and placebo groups.

Hjorth et al. (2014) concluded that "the intervention had a positive effect on the physical health of the patients measured by a reduction in the increase of waist circumference".

As the primary objective of the Kim et al. (2014) trial was to evaluate the effects of aerobic exercise on gastrointestinal mobility, the authors did not make any conclusions regarding body size.

Wu et al. (2014) concluded that "a program of dietary control and regular physical activity can significantly reduce body weight and improve insulin, triglyceride, and IGFBP-3 among obese inpatients taking clozapine for the treatment of schizophrenia."

### ***Reliability of conclusions/Strength of evidence***

The SR Mukundan et al. (2013) was well-conducted and the results are likely to be reliable. The authors noted, however, that some new studies not yet included in the review (i.e. awaiting classification) could alter the conclusions.

The Ranjbar et al. (2013) trial was well conducted, but limited by a small sample size and may be underpowered.

Some aspects of the methodology used by the Hjorth et al. (2014) trial was not clearly reported, so the reliability of the results are uncertain. The conclusions may also be slightly overstated, as a 'lack of gain' in the intervention group *for one outcome* is not overly convincing to establish efficacy.

Methods of randomisation and blinding were not reported in the trials by Kim et al. (2014) and Wu et al. (2007). Both these studies also had a small sample sizes, and overall, were considered to have a high risk of bias.

### **What do guidelines say?**

The National Institute of Health and Clinical Care Excellence guidelines, 'Obesity: identification, assessment and management of overweight and obesity in children, young people and adults' (2014) make the following research recommendations on the topic of weight management for people with severe mental health problems (not exclusively inpatients):

“[*Research question to be answered:*] What is the best way to deliver obesity management interventions to people with particular conditions associated with increased risk of obesity (such as people with a physical disability that limits mobility, a learning disability or enduring mental health difficulties)?

...There is minimal evidence from controlled studies as to which obesity interventions are effective for people with learning disabilities or mental health difficulties. This lack of evidence contributes to the inequalities around outcomes and access to services as experienced by these people.” (p.35)

**Date question received:**

**Date searches conducted:**

**Date answer completed:** 01/10/2015

### **References**

#### ***Systematic reviews***

1. Mukundan, A., Faulkner, G., Cohn, T., & Remington, G. (2010). Antipsychotic switching for people with schizophrenia who have neuroleptic-induced weight or metabolic problems. *The Cochrane Library*.

#### ***Randomised controlled trials***

2. Kim, Y. S., Song, B. K., Oh, J. S., & Woo, S. S. (2014). Aerobic exercise improves gastrointestinal motility in psychiatric inpatients. *World Journal of Gastroenterology*, 20(30), 10577.
3. Hjorth, P., Davidsen, A. S., Kilian, R., Eriksen, S. P., Jensen, S. O., Sørensen, H. Ø., & Munk-Jørgensen, P. (2014). Improving the physical health of long-term psychiatric inpatients. *Australian and New Zealand Journal of Psychiatry*, 48(9), 861-870.
4. Ranjbar, F., Ghanepour, A., Sadeghi-Bazargani, H., Asadlo, M., & Alizadeh, A. (2013). The effect of ranitidine on olanzapine-induced weight gain. *BioMed Research International*, 2013.

5. Wu, M. K., Wang, C. K., Bai, Y. M., Huang, C. Y., & Lee, S. D. (2007). Outcomes of obese, clozapine-treated inpatients with schizophrenia placed on a six-month diet and physical activity program. *Psychiatric services*, 58(4), 544-550.

### **Guidelines**

6. The National Institute of Health and Clinical Care Excellence (2014). Obesity: identification, assessment and management of overweight and obesity in children, young people and adults. *NICE clinical guideline 189*. Retrieved from [guidance.nice.org.uk/cg189](http://guidance.nice.org.uk/cg189)

## Results

### Systematic reviews

Author (year)	Search date	Inclusion criteria	Number of included studies	Summary of results	Risk of bias
Mukundan et al. (2010)	Three: 2005; 2007; 2012	<p><b>Participants:</b> People diagnosed with schizophrenia or schizophrenia-like illnesses, using any criteria, with weight/metabolic problems.</p> <p><b>Intervention:</b> Switching antipsychotic medication</p> <p><b>Comparator:</b> (i). Continuation of original medication; (ii). Other weight management strategies (e.g. exercise or diet); (iii). Rates of discontinuation (e.g. abrupt vs gradual).</p> <p><b>Outcome:</b> (i). Weight &amp; physiological measures; (ii). Presence of metabolic syndrome; (iii). Global state; (iv). Relapse; (v). Positive &amp; negative symptoms of schizophrenia.</p> <p><b>Study design:</b> Systematic review of RCTs.</p>	4 RCTs (n = 363)	<p><b>Switching antipsychotic regimen versus continuation on previous regimen: 1) New atypical from olanzapine:</b> There was a statistically non-significant mean weight loss of 1.94 kg in people who were switched from olanzapine to other medications (aripiprazole or quetiapine) compared to those who remained on it (2 RCTs, n = 287, CI -3.97 to 0.08).</p> <p>The average BMI was lower in the group switched to quetiapine compared to those who remained on olanzapine (1 RCT, n = 129 MD -0.52 CI -1.26 to 0.22), but the result was not statistically significant.</p> <p>Based on 1 RCT, there was a significant difference in the number of patients who had clinically relevant BMI increase (more than 1kg/m<sup>2</sup>) between aripiprazole (8 out of</p>	Low

			<p>88) and olanzapine (28 out of 85) (n = 173, RR 0.28, CI 0.13 to 0.57).</p> <p>Although fewer people who switched to aripiprazole had an increase in waist circumference compared to those remaining on olanzapine at the end of 16 weeks; the difference between the groups was not significant (1 RCT, n = 173, RR 0.92 CI 0.76 to 1.11).</p> <p><b>2) Different depot from depot:</b> Based on one trial, there was an average weight loss of 2.80 kg by the end of the year in those who were switched from fluphenazine-decanoate to haloperidol decanoate, but the trial was small (n= 19) and the confidence intervals wide (-7.04 to 1.44).</p> <p><b>Switching to aripiprazole from previous regimen</b> (Technique 1 = Immediate initiation + immediate discontinuation of current antipsychotic; Technique 2 = immediate initiation + tapering of current antipsychotic; Technique 3 = titrating switch medication upwards + tapering of current antipsychotic): There was no clear difference between any different technique for</p>	
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				<p>antipsychotic switching on the outcome of weight gain.</p> <p>The authors also reported that people were less likely to leave the study early if they remained on olanzapine compared to switching to quetiapine or aripiprazole.</p> <p>Other outcomes were also reported in the SR, but not extracted in detail here. The authors stated that “there was no significant difference in outcomes of mental state, global state, and adverse events between groups which switched medications and those that remained on previous medication.”</p>	
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**Randomised controlled trials**

<b>Author (year)</b>	<b>Inclusion criteria</b>	<b>Number of participants</b>	<b>Summary of results</b>	<b>Risk of bias</b>
Hjorth et al. (2014)	<p><b>Participants:</b> Inpatients with severe mental 'disabilities' (unspecified) in 6 psychiatric facilities across Denmark.</p> <p><b>Intervention:</b> 'Active awareness' health promotion programme run for patients and staff over 12 months, involving (i) focus groups; (ii) 2 one-hour health planning sessions; (iii) 3 health education sessions with staff (1.5 hours); (iv) 3 staff education sessions on antipsychotic medication (1.5 hours); (v) monthly guidance on healthy food consumption.</p> <p><b>Comparator:</b> Treatment as usual</p> <p><b>Outcome (of interest):</b> Waist circumference, BMI, bodyweight, physical fitness (assessed by an exercise bike session)</p>	Cluster RCT: 3 facilities in intervention and 3 in the control group; n=97 (85 analysed: 40 in intervention group; 45 controls)	<p>After 12 months, no significant differences between the groups were observed for any of the outcomes evaluated:</p> <p>Waist circumference (cm): Mean difference 2.92 (95% CI: -0.33 to 6.17) [this is due to +2.17 difference from baseline in the control group, and a -0.75 difference from baseline in the intervention group]</p> <p>BMI (kg/m<sup>2</sup>): MD 0.19 (95% CI: -0.81 to 1.19)</p> <p>Body fat (%): MD 1.45 (95% CI: -0.28 to 3.19)</p> <p>Linear regression analyses, controlling for the effect of cluster randomisation, sex, age, and body fat, showed a difference in the change of WC between the intervention and control groups of -3.1 cm (p=0.018).</p>	Unclear
Kim et al. (2014)	<p><b>Participants:</b> Male inpatients of a psychiatric unit in South Korea admitted over a 4-month period, who had not undertaken any exercise programme in the preceding 12 months. Those with cardiovascular or orthopaedic diseases, hypertension, diabetes or irritable bowel</p>	60 (n=42 analysed: 23 in intervention group; 19 controls)	<p>After 12 weeks, no significant differences between the intervention and control groups were observed:</p> <p>Body weight (kg): 67 (SE 2.7) vs. 68.8 (SE 3.9)</p> <p>BMI (kg/m<sup>2</sup>): 24.9 (SE 0.8) vs. 24.4 (SE 1.2)</p> <p>Lean body mass (kg): 48.7 (SE 1.4) vs. 46.8 (SE 2.0)</p> <p>Body fat (%): 27.9 (SE 2.0) vs. 30.8 (SE 2.5)</p> <p>Thigh circumference (cm): 49.6 (SE 2.9) vs. 46.3 (SE 2.3)</p>	High (due to small sample size)

	<p>syndrome were excluded.</p> <p><b>Intervention:</b> 60-min instructor-led aerobic exercise classes for 3 days per week over 12 weeks.</p> <p><b>Comparator:</b> Control group with instruction to continue ordinary daily activities.</p> <p><b>Outcome (of interest):</b> Body mass index (BMI), measured by InBody 3.0 bioelectrical impedance analysis system.</p>		Waist circumference (cm): 85.5 (SE 2.4) vs. 90.5 (SE 4.0)	
Ranjbar et al. (2013)	<p><b>Participants:</b> Inpatients at a psychiatric ward in Iran, diagnosed with schizophrenia, schizoaffective and schizophreniform disorders according to Diagnostic and Statistical Manual of Mental Disorders (DSM-IV), who were due to receive Olanzapine medication. Patients with physical illness, current use of other weight-affecting drugs or who followed specific diets were excluded.</p> <p><b>Intervention:</b> Ranitidine 600mg/day for 16 weeks alongside Olanzapine.</p> <p><b>Comparator:</b> Placebo for 16 weeks alongside Olanzapine.</p> <p><b>Outcome:</b> BMI measured weekly using calibrated digital scales.</p>	52 (25 in intervention group; 27 controls)	<p>BMI and weight was found to increase in both treatment and placebo groups over the 16 weeks of the intervention. The weight gain was slightly attenuated in the patients who received treatment; the average BMI increment was 1.1 for the treatment group, and 2.4 for the placebo group.</p> <p>The authors stated that ‘after controlling for baseline values and other cofactors, the longitudinal data modelling for slope comparison failed to show the whole trend slope to be different for the two groups.’</p>	High (due to small sample size)

Wu et al. (2007)	<p><b>Participants:</b> Psychiatric inpatients in Taiwan diagnosed with schizophrenia according to DSM-IV, taking Clozapine at least 300mg/day, with a BMI of 27 or greater.</p> <p><b>Intervention:</b> (i). Dietary control supervised by a dietitian, involving a daily intake of 1300-1500 calories for women and 1600-1800 for men, with expected reduction in protein, fat and carbohydrate. (ii). Aerobic exercise for 60 mins (approx) per day, 3 times a week for 6 months.</p> <p><b>Comparator:</b> Control group (unspecified).</p> <p><b>Outcome (of interest):</b> BMI; waist &amp; hip circumference.</p>	56 (53 analysed: 28 in intervention group; 25 controls)	<p>After 6 months, significant differences between the intervention and control groups were observed for all outcomes, except waist-to-hip ratio and body fat:</p> <p>BMI (kg/m<sup>2</sup>): mean difference -1.59 (SD 1.66) vs. 0.35 (SD 1.3)</p> <p>Body weight: mean difference -4.2 (SD 4.4) vs. 1.0 (SD 3.4)</p> <p>Waist circumference (cm): mean difference -3.32 (SD 4.2) vs. 1.2 (SD 4.3)</p> <p>Hip circumference (cm): mean difference -3.3 (SD 4.5) vs. 0.3 (SD 2.7)</p> <p>Waist-to-hip ratio: mean difference -0.01 (SD 0.04) vs. 0.1 (SD 0.3)</p> <p>Body fat (%): mean difference -1.3 (SD 6.4) vs. 1.3 (SD 4.2)</p>	High (due to small sample size)
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## Risk of bias

### Systematic reviews

Author (year)	RISK OF BIAS				
	Inclusion criteria	Searches	Review process	Quality assessment	Synthesis
Study 1					
Study 2					
Study 3					

### Randomised controlled trials

Study	RISK OF BIAS					
	Random allocation	Allocation concealment	Blinding of participants and personnel	Blinding of outcome assessment	Incomplete outcome data	Selective Reporting
Hjorth et al. (2014)						
Kim et al. (2014)						
Ranjbar et al. (2013)						
Wu et al. (2007)						

 Low risk

 High risk

 Unclear risk

## Search details

Source	Search Strategy	Number of hits	Relevant evidence identified
<i>Guidelines</i>			
NICE	obesity overweight "mental health"	47	0
	obesity overweight schizophrenia	3	0
	weight management "mental health" "mental illness"	22	1
<i>Systematic Reviews</i>			
MEDLINE	<ol style="list-style-type: none"> <li>1 Suicide, Attempted/ (15932)</li> <li>2 exp Self Mutilation/ (3125)</li> <li>3 exp Self-Injurious Behavior/ (57368)</li> <li>4 exp Mood Disorders/ (123778)</li> <li>5 exp Bipolar Disorder/ (33967)</li> <li>6 exp Neurotic Disorders/ (16000)</li> <li>7 exp Depressive Disorder/ (86728)</li> <li>8 exp Dysthymic Disorder/ (1052)</li> <li>9 exp Depression/ or exp Depression, Postpartum/ (88563)</li> <li>10 exp Seasonal Affective Disorder/ (1122)</li> <li>11 exp Anxiety/ or exp Dental Anxiety/ or exp Anxiety, Separation/ or exp Anxiety Disorders/ (131337)</li> <li>12 exp Panic/ or exp Panic Disorder/ (8588)</li> <li>13 exp Phobic Disorders/ (9671)</li> <li>14 exp Combat Disorders/ (2728)</li> <li>15 exp Stress Disorders, Post-Traumatic/ (23489)</li> <li>16 exp Somatoform Disorders/ (13577)</li> <li>17 exp Hypochondriasis/ (2173)</li> <li>18 exp Hysteria/ (3460)</li> <li>19 exp Conversion Disorder/ (2012)</li> <li>20 exp Munchausen Syndrome/ or exp Munchausen Syndrome by Proxy/ (1720)</li> <li>21 exp Obsessive-Compulsive Disorder/ (12070)</li> </ol>	55	1

	<p>22 exp Obsessive Behavior/ (1094)  23 exp Compulsive Behavior/ (8383)  24 exp Stress, Psychological/ (100438)  25 *Mental Disorders/ (96948)  26 exp Schizophrenia/ (90300)  27 exp Paranoid Disorders/ (3848)  28 (schizo\$ or hebephreni\$ or oligophreni\$ or psychotic\$ or psychos#s).ab,ti. (149968)  29 ((chronic\$ adj mental\$) or (sever\$ adj mental) or (mental\$ adj disorder\$) or (mental\$ adj ill\$) or (emotion\$ adj disorder\$)).ab,ti. (55689)  30 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 (679459)  31 exp overweight/ (158992)  32 exp Obesity/ (156765)  33 exp Weight loss/ (31521)  34 exp Diet therapy/ (44583)  35 exp Diet/ (210806)  36 (Overweight or obese or obesity or low calor* or restricted diet or exercise or physical activity).ab,ti. (436859)  37 (weight adj3 (loss or lose or reduc*)).ab,ti. (87124)  38 31 or 32 or 33 or 34 or 35 or 36 or 37 (707160)  39 exp Prisons/ (8244)  40 exp Criminals/ (1485)  41 exp Hospitals, Psychiatric/ (23068)  42 (prison* or jail or gaol or incarcerat* or detain*).ab,ti. (21324)  43 exp forensic psychiatry/ or exp "commitment of mentally ill"/ (35125)  44 (hospital or ward or unit or admitted or resident* or committed or section*).ab,ti. (1591038)  45 39 or 40 or 41 or 42 or 43 or 44 (1655876)  46 30 and 38 and 45 (2878)  47-67 Systematic Review filter (54286)  68 46 and 67 (55)</p>		
EMBASE	<p>1 Suicide, Attempted/ (19701)  2 exp Self Mutilation/ (11914)</p>	13	1

	<p>3 exp Self-Injurious Behavior/ (11914)</p> <p>4 exp Mood Disorders/ (379626)</p> <p>5 exp Bipolar Disorder/ (45242)</p> <p>6 exp Neurotic Disorders/ (56524)</p> <p>7 exp Depressive Disorder/ (346992)</p> <p>8 exp Dysthymic Disorder/ (6684)</p> <p>9 exp Depression/ or exp Depression, Postpartum/ (346992)</p> <p>10 exp Seasonal Affective Disorder/ (1036)</p> <p>11 exp Anxiety/ or exp Dental Anxiety/ or exp Anxiety, Separation/ or exp Anxiety Disorders/ (282771)</p> <p>12 exp Panic/ or exp Panic Disorder/ (18798)</p> <p>13 exp Phobic Disorders/ (23885)</p> <p>14 exp Combat Disorders/ (39520)</p> <p>15 exp Stress Disorders, Post-Traumatic/ (39520)</p> <p>16 exp Somatoform Disorders/ (19865)</p> <p>17 exp Hypochondriasis/ (3775)</p> <p>18 exp Hysteria/ (6120)</p> <p>19 exp Conversion Disorder/ (1806)</p> <p>20 exp Munchausen Syndrome/ or exp Munchausen Syndrome by Proxy/ (2100)</p> <p>21 exp Obsessive-Compulsive Disorder/ (30541)</p> <p>22 exp Obsessive Behavior/ (8709)</p> <p>23 exp Compulsive Behavior/ (8425)</p> <p>24 exp Stress, Psychological/ (63692)</p> <p>25 *Mental Disorders/ (86143)</p> <p>26 exp Schizophrenia/ (154828)</p> <p>27 exp Paranoid Disorders/ (14367)</p> <p>28 (schizo\$ or hebephreni\$ or oligophreni\$ or psychotic\$ or psychos#s).ab.ti. (195084)</p> <p>29 ((chronic\$ adj mental\$) or (sever\$ adj mental) or (mental\$ adj disorder\$) or (mental\$ adj ill\$) or (emotion\$ adj disorder\$)).ab.ti. (70936)</p> <p>30 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 (905855)</p> <p>31 exp overweight/ (345459)</p> <p>32 exp Obesity/ (345459)</p> <p>33 exp Weight loss/ (116492)</p> <p>34 exp Diet therapy/ (269620)</p>		
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	<p>35 exp Diet/ (236070)  36 (Overweight or obese or obesity or low calor* or restricted diet or exercise or physical activity).ab,ti. (581186)  37 (weight adj3 (loss or lose or reduc*)).ab,ti. (123331)  38 31 or 32 or 33 or 34 or 35 or 36 or 37 (1142866)  39 exp Prisons/ (12357)  40 exp Criminals/ (9283)  41 exp Hospitals, Psychiatric/ (31670)  42 (prison* or jail or gaol or incarcerat* or detain*).ab,ti. (25061)  43 exp forensic psychiatry/ or exp "commitment of mentally ill"/ (12264)  44 (hospital or ward or unit or admitted or resident* or committed or section*).ab,ti. (2092065)  45 39 or 40 or 41 or 42 or 43 or 44 (2146961)  46 30 and 38 and 45 (6644)  47-77 Systematic Review filter (31257)  78 46 and 77 (13)</p>		
PsycINFO	<p>1 exp ATTEMPTED SUICIDE/ (8390)  2 exp SELF MUTILATION/ (1100)  3 exp SELF INJURIOUS BEHAVIOR/ (3937)  4 exp AFFECTIVE DISORDERS/ (130825)  5 exp BIPOLAR DISORDER/ (21475)  6 (Mood adj disorder*).ti,ab. (11817)  7 exp MAJOR DEPRESSION/ (102279)  8 exp DYSTHYMIC DISORDER/ (1413)  9 exp NEUROSIS/ (7511)  10 exp SEASONAL AFFECTIVE DISORDER/ (954)  11 exp ANXIETY DISORDERS/ (66974)  12 exp PANIC DISORDER/ (7023)  13 exp PHOBIAS/ (11450)  14 exp POSTTRAUMATIC STRESS DISORDER/ (24210)  15 exp SOMATOFORM DISORDERS/ (11285)  16 exp HYPOCHONDRIASIS/ (1150)  17 exp HYSTERIA/ (1954)</p>	6	0

	<p>18 exp CONVERSION DISORDER/ (1111)  19 exp OBSESSIVE COMPULSIVE DISORDER/ (11011)  20 exp PSYCHOLOGICAL STRESS/ (7900)  21 (Mental adj6 Disorders).ti,ab. (40749)  22 exp SCHIZOPHRENIA/ (76626)  23 exp "PARANOIA (PSYCHOSIS)"/ (1345)  24 (schizo* or hebephrenic* or oligophreni* or psychotic* or psychos* or (chronic* adj mental*) or (severe* adj mental*) or (mental* adj disorder*) or (mental* adj ill*) or (emotion* adj disorder*)).ab,ti. (285267)  25 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 (468709)  26 exp overweight/ (19022)  27 exp Obesity/ (18091)  28 exp Weight loss/ (2623)  29 exp Diets/ (10098)  30 (Overweight or obese or obesity or low calor* or restricted diet or exercise or physical activity).ab,ti. (77130)  31 (weight adj3 (loss or lose or reduc*)).ab,ti. (11567)  32 26 or 27 or 28 or 29 or 30 or 31 (89985)  33 exp Prisons/ (5697)  34 exp Criminals/ (17013)  35 exp Psychiatric Hospitals/ (7264)  36 (prison* or jail or gaol or incarcerat* or detain*).ab,ti. (26721)  37 exp Mentally Ill Offenders/ or exp Forensic Psychiatry/ (6528)  38 (hospital or ward or unit or admitted or resident* or committed or section*).ab,ti. (304862)  39 33 or 34 or 35 or 36 or 37 or 38 (342260)  40 25 and 32 and 39 (1629)  41-51 Systematic Review Filter (7179)  52 40 and 51 (6)</p>		
<i>Primary Studies</i>			
MEDLINE	<p>1 Suicide, Attempted/ (15932)  2 exp Self Mutilation/ (3125)  3 exp Self-Injurious Behavior/ (57368)</p>	279	3

	<p>4 exp Mood Disorders/ (123778)</p> <p>5 exp Bipolar Disorder/ (33967)</p> <p>6 exp Neurotic Disorders/ (16000)</p> <p>7 exp Depressive Disorder/ (86728)</p> <p>8 exp Dysthymic Disorder/ (1052)</p> <p>9 exp Depression/ or exp Depression, Postpartum/ (88563)</p> <p>10 exp Seasonal Affective Disorder/ (1122)</p> <p>11 exp Anxiety/ or exp Dental Anxiety/ or exp Anxiety, Separation/ or exp Anxiety Disorders/ (131337)</p> <p>12 exp Panic/ or exp Panic Disorder/ (8588)</p> <p>13 exp Phobic Disorders/ (9671)</p> <p>14 exp Combat Disorders/ (2728)</p> <p>15 exp Stress Disorders, Post-Traumatic/ (23489)</p> <p>16 exp Somatoform Disorders/ (13577)</p> <p>17 exp Hypochondriasis/ (2173)</p> <p>18 exp Hysteria/ (3460)</p> <p>19 exp Conversion Disorder/ (2012)</p> <p>20 exp Munchausen Syndrome/ or exp Munchausen Syndrome by Proxy/ (1720)</p> <p>21 exp Obsessive-Compulsive Disorder/ (12070)</p> <p>22 exp Obsessive Behavior/ (1094)</p> <p>23 exp Compulsive Behavior/ (8383)</p> <p>24 exp Stress, Psychological/ (100438)</p> <p>25 *Mental Disorders/ (96948)</p> <p>26 exp Schizophrenia/ (90300)</p> <p>27 exp Paranoid Disorders/ (3848)</p> <p>28 (schizo\$ or hebephreni\$ or oligophreni\$ or psychotic\$ or psychos#s).ab.ti. (149968)</p> <p>29 ((chronic\$ adj mental\$) or (sever\$ adj mental) or (mental\$ adj disorder\$) or (mental\$ adj ill\$) or (emotion\$ adj disorder\$)).ab.ti. (55689)</p> <p>30 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 (679459)</p> <p>31 exp overweight/ (158992)</p> <p>32 exp Obesity/ (156765)</p>		
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	<p>33 exp Weight loss/ (31521)  34 exp Diet therapy/ (44583)  35 exp Diet/ (210806)  36 (Overweight or obese or obesity or low calor* or restricted diet or exercise or physical activity).ab,ti. (436859)  37 (weight adj3 (loss or lose or reduc*)).ab,ti. (87124)  38 31 or 32 or 33 or 34 or 35 or 36 or 37 (707160)  39 exp Prisons/ (8244)  40 exp Criminals/ (1485)  41 exp Hospitals, Psychiatric/ (23068)  42 (prison* or jail or gaol or incarcerat* or detain*).ab,ti. (21324)  43 exp forensic psychiatry/ or exp "commitment of mentally ill"/ (35125)  44 (hospital or ward or unit or admitted or resident* or committed or section*).ab,ti. (1591038)  45 39 or 40 or 41 or 42 or 43 or 44 (1655876)  46 30 and 38 and 45 (2878)  47-54 RCT filter (733047)  55 46 and 54 (329)  56 limit 55 to (english language and yr="2000 -Current") (279)</p>		
EMBASE	<p>1 Suicide, Attempted/ (19701)  2 exp Self Mutilation/ (11914)  3 exp Self-Injurious Behavior/ (11914)  4 exp Mood Disorders/ (379626)  5 exp Bipolar Disorder/ (45242)  6 exp Neurotic Disorders/ (56524)  7 exp Depressive Disorder/ (346992)  8 exp Dysthymic Disorder/ (6684)  9 exp Depression/ or exp Depression, Postpartum/ (346992)  10 exp Seasonal Affective Disorder/ (1036)  11 exp Anxiety/ or exp Dental Anxiety/ or exp Anxiety, Separation/ or exp Anxiety Disorders/ (282771)  12 exp Panic/ or exp Panic Disorder/ (18798)  13 exp Phobic Disorders/ (23885)  14 exp Combat Disorders/ (39520)</p>	255	3

	<p>15 exp Stress Disorders, Post-Traumatic/ (39520)</p> <p>16 exp Somatoform Disorders/ (19865)</p> <p>17 exp Hypochondriasis/ (3775)</p> <p>18 exp Hysteria/ (6120)</p> <p>19 exp Conversion Disorder/ (1806)</p> <p>20 exp Munchausen Syndrome/ or exp Munchausen Syndrome by Proxy/ (2100)</p> <p>21 exp Obsessive-Compulsive Disorder/ (30541)</p> <p>22 exp Obsessive Behavior/ (8709)</p> <p>23 exp Compulsive Behavior/ (8425)</p> <p>24 exp Stress, Psychological/ (63692)</p> <p>25 *Mental Disorders/ (86143)</p> <p>26 exp Schizophrenia/ (154828)</p> <p>27 exp Paranoid Disorders/ (14367)</p> <p>28 (schizo\$ or hebephreni\$ or oligophreni\$ or psychotic\$ or psychos#s).ab,ti. (195084)</p> <p>29 ((chronic\$ adj mental\$) or (sever\$ adj mental) or (mental\$ adj disorder\$) or (mental\$ adj ill\$) or (emotion\$ adj disorder\$)).ab,ti. (70936)</p> <p>30 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 (905855)</p> <p>31 exp overweight/ (345459)</p> <p>32 exp Obesity/ (345459)</p> <p>33 exp Weight loss/ (116492)</p> <p>34 exp Diet therapy/ (269620)</p> <p>35 exp Diet/ (236070)</p> <p>36 (Overweight or obese or obesity or low calor* or restricted diet or exercise or physical activity).ab,ti. (581186)</p> <p>37 (weight adj3 (loss or lose or reduc*)).ab,ti. (123331)</p> <p>38 31 or 32 or 33 or 34 or 35 or 36 or 37 (1142866)</p> <p>39 exp Prisons/ (12357)</p> <p>40 exp Criminals/ (9283)</p> <p>41 exp Hospitals, Psychiatric/ (31670)</p> <p>42 (prison* or jail or gaol or incarcerat* or detain*).ab,ti. (25061)</p> <p>43 exp forensic psychiatry/ or exp "commitment of mentally ill"/ (12264)</p>		
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	<p>44 (hospital or ward or unit or admitted or resident* or committed or section*).ab,ti. (2092065)</p> <p>45 39 or 40 or 41 or 42 or 43 or 44 (2146961)</p> <p>46 30 and 38 and 45 (6644)</p> <p>47-53 RCT filter (875201)</p> <p>54 46 and 53 (726)</p> <p>55 limit 54 to (english language and randomized controlled trial and yr="2000 -Current") (255)</p>		
PsycINFO	<p>1 exp ATTEMPTED SUICIDE/ (8390)</p> <p>2 exp SELF MUTILATION/ (1100)</p> <p>3 exp SELF INJURIOUS BEHAVIOR/ (3937)</p> <p>4 exp AFFECTIVE DISORDERS/ (130825)</p> <p>5 exp BIPOLAR DISORDER/ (21475)</p> <p>6 (Mood adj disorder*).ti,ab. (11817)</p> <p>7 exp MAJOR DEPRESSION/ (102279)</p> <p>8 exp DYSTHYMIC DISORDER/ (1413)</p> <p>9 exp NEUROSIS/ (7511)</p> <p>10 exp SEASONAL AFFECTIVE DISORDER/ (954)</p> <p>11 exp ANXIETY DISORDERS/ (66974)</p> <p>12 exp PANIC DISORDER/ (7023)</p> <p>13 exp PHOBIAS/ (11450)</p> <p>14 exp POSTTRAUMATIC STRESS DISORDER/ (24210)</p> <p>15 exp SOMATOFORM DISORDERS/ (11285)</p> <p>16 exp HYPOCHONDRIASIS/ (1150)</p> <p>17 exp HYSTERIA/ (1954)</p> <p>18 exp CONVERSION DISORDER/ (1111)</p> <p>19 exp OBSESSIVE COMPULSIVE DISORDER/ (11011)</p> <p>20 exp PSYCHOLOGICAL STRESS/ (7900)</p> <p>21 (Mental adj6 Disorders).ti,ab. (40749)</p> <p>22 exp SCHIZOPHRENIA/ (76626)</p> <p>23 exp "PARANOIA (PSYCHOSIS)"/ (1345)</p> <p>24 (schizo* or hebephrenic* or oligophreni* or psychotic* or psychos* or (chronic* adj mental*) or (severe* adj mental*) or (mental* adj disorder*) or (mental* adj ill*) or (emotion* adj disorder*)).ab,ti. (285267)</p>	166	2

	<p>25 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 (468709)  26 exp overweight/ (19022)  27 exp Obesity/ (18091)  28 exp Weight loss/ (2623)  29 exp Diets/ (10098)  30 (Overweight or obese or obesity or low calor* or restricted diet or exercise or physical activity).ab,ti. (77130)  31 (weight adj3 (loss or lose or reduc*)).ab,ti. (11567)  32 26 or 27 or 28 or 29 or 30 or 31 (89985)  33 exp Prisons/ (5697)  34 exp Criminals/ (17013)  35 exp Psychiatric Hospitals/ (7264)  36 (prison* or jail or gaol or incarcerat* or detain*).ab,ti. (26721)  37 exp Mentally Ill Offenders/ or exp Forensic Psychiatry/ (6528)  38 (hospital or ward or unit or admitted or resident* or committed or section*).ab,ti. (304862)  39 33 or 34 or 35 or 36 or 37 or 38 (342260)  40 25 and 32 and 39 (1629)  41-46 RCT filter (167517)  47 40 and 46 (166)</p>		
CENTRAL	<p>#1 MeSH descriptor: [Overweight] explode all trees 8633  #2 MeSH descriptor: [Obesity] explode all trees 7940  #3 MeSH descriptor: [Weight Loss] explode all trees 3743  #4 MeSH descriptor: [Diet] explode all trees 12556  #5 (Overweight or obese or obesity or low calor* or restricted diet or exercise or physical activity).ab,ti. 444  #6 (weight adj3 (loss or lose or reduc*)).ab,ti. 219  #7 #1 or #2 or #3 or #4 or #5 or #6 19658  #8 MeSH descriptor: [Prisons] explode all trees 90  #9 MeSH descriptor: [Criminals] explode all trees 55  #10 (prison* or jail or gaol or incarcerat* or detain*).ab,ti. 35  #11 #8 or #9 or #10 174  #12 (mental or psychosis or psychotic or schizophren* or depress* or anxi*) 99639</p>	0	0

	#13 #11 and #12 70 #14 (mental or psychiatric adj (hospital or ward or unit)) .ab,ti. 228 #15 (admitted or committed or section*) .ab,ti. 765 #16 (mental) .ab,ti. 263 #17 #15 and #16 225 #18 #13 or #14 or #17 289 #19 #7 and #18 179 RCTs only: 0		
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### Disclaimer

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