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REVIEW

A systematic review of the cost-effectiveness of non-surgical obesity interventions in men

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Abbreviations: BMI, Body Mass Index; UK, United Kingdom; USA, United States of America; QALY, quality adjusted life year; NIHR, National Institute for Health Research; HTA, Health Technology Assessment; NHS, National Health Service; OECD, Organization for Economic Co-Operation and Development; CEA, cost-effectiveness analysis; CUA, cost-utility analysis; ICER, incremental cost-effectiveness ratio; NICE, National Institute for Health and Care Excellence; EUnetHTA, European Network for Health Technology Assessment; CADTH, Canadian Agency for Drugs and Technologies in Health; RCT, randomised controlled trial; GP, General Practitioner; IHD, Ischaemic Heart Disease; WTP, willingness to pay; MOBILIS, Multizentrisch Organisierte Bewegungsorientierte Initiative zur Lebensstiländerung In Selbstverantwortung (translated from German as a Multi-centre movement oriented initiative for lifestyle change through self-responsibility); DGE, Deutsche Gesellschaft für Ernählung (translated from German as the German Society for Nutrition); XENDOS, XENical in the prevention of Diabetes in Obese Subjects; HbA1c, haemoglobin A1c; IGT, impaired glucose tolerance; CEAC, cost-effectiveness acceptability curve; CHF, Swiss Francs; GBP, Great British Pounds; FFIT, Football Fans In Training; UKPDS, United Kingdom Prevention of Diabetes Study.

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KEYWORDS
Obesity treatment;
Men's health;
Cost-effectiveness;
Decision analysis

Summary:
Background: Increasing obesity related health conditions have a substantial burden on population health and healthcare spending. Obesity may have a sex-specific impact on disease development, men and women may respond differently to interventions, and there may be sex-specific differences to the cost-effectiveness of interventions to address obesity. There is no clear indication of cost-effective treatments for men.
Methods: This systematic review summarises the literature reporting the cost-effectiveness of non-surgical weight-management interventions for men. Studies were quality assessed against a checklist for appraising decision modelling studies.
Results: Although none of the included studies explicitly set out to determine the cost-effectiveness of treatment for men, seven studies reported results for subgroups of men. Interventions were grouped into lifestyle interventions (five studies) and Orlistat (two studies). The retrieved studies showed promising evidence of cost-effectiveness, especially when interventions were targeted at high-risk groups, such as those with impaired glucose tolerance. There appears to be some sex-specific elements to cost-effectiveness, however, there were no clear trends or indications of what may be contributing to this.
Conclusion: The economic evidence was highly uncertain, and limited by variable methodological quality of the included studies. It was therefore not possible to draw strong conclusions on cost-effectiveness. Future studies are required to demonstrate the cost-effectiveness of interventions specifically targeted towards weight loss for men.
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Introduction

Overweight and obesity are significant population health concerns. US data from 2007 to 2010 show that based on having a BMI (Body Mass Index) $\geq 30\,kg/m^2$, 34.4% of men and 36.1% of women were obese [1]. In England in 2011, 24% of men and 26% of women were obese, however 65% of men and 58% of women were obese or overweight [2]. Projections from the UK Foresight report [3] show that men will overtake women for obesity (47% and 36% respectively by 2025). However, morbid obesity (BMI $\geq 40\,kg/m^2$) tends to be less prevalent in men than women [2,4]. Worldwide,

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