

Institution: Leeds Beckett University (LBU)		
Unit of Assessment: 24 – Sport and Exercise Science, Leisure and Tourism		
Title of case study: Tackling obesity in the UK and internationally: LBU and MoreLife.		
Period when the underpinning research was undertaken: 1 Jan 2000 to 31 Dec 2020		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s):	Period(s) employed by submitting HEI:
Prof Paul Gately	Professor	1/1/2012 - present
Prof Carlton Cooke	Professor	1/1/1990 - 31/8/2015; 8/6/2020-present
Prof Jim McKenna	Professor	1/1/2005 - present
Dr Claire Griffiths	Reader	3/5/2007 - present
Dr Duncan Radley	Senior Research Fellow	1/2/2014 - present
Dr Stuart Flint	Senior Research Fellow	5/9/2016 - 21/7/2019
Dr James Nobles	Research Fellow	1/5/2016 - 2/9/2018
Period when the claimed impact occurred: 1 August 2013 – 31 December 2020		
Is this case study continued from a case study submitted in 2014? No.		
<p>1. Summary of the impact</p> <p>More than 72,000 children and adults have directly benefited from improved obesity treatment delivering clinically significant weight loss, provided by Leeds Beckett University's (LBU) subsidiary company, More Life, primarily via the NHS and local authorities. MoreLife have also successfully transferred this impact to the treatment of Qatari children and underpinned the development of the national NHS Diabetes Prevention Programme. LBU's co-created research with Public Health England (PHE) on a Whole Systems Approach (WSA) to obesity has impacted obesity in local authorities across England and beyond, as well as framing the submission of evidence that has changed UK Government policy on childhood obesity.</p>		
<p>2. Underpinning research</p> <p>LBU's research on obesity is now delivered through the Applied Obesity Research Centre (AORC) and co-led by Professors Gately, Cooke and Eells (recently joined LBU). Research on weight management service (WMS) design has demonstrated that programme characteristics predicted programme engagement better than participant characteristics, informing adaptations to programme design to maximise engagement and minimise attrition [1]. Original work on commitment devices delivered by text messages to adolescents showed that weight maintenance was achieved, in comparison to a control group that were eight times more likely to regain their weight [2]. These findings demonstrated the value of developing digital tools to support participants engaged in WMSs, which has proved invaluable during lockdown. A qualitative study of employees' experiences of participating in a commercial WMS funded by their employers revealed the factors that motivated employees to attend the work-based weight management programme. This novel approach to facilitating employees' weight management showed that they valued their employer supporting participation in a commercial WMS, which facilitates greater engagement and impact in the workplace [3].</p> <p>In 2015 PHE commissioned LBU to develop a WSA to Obesity for use in Local Authorities (LAs). A systematic review [4] established that such an approach could have some benefit, but evidence of how to operationalise a WSA did not exist. These findings underpinned subsequent research, an example of which established what actions were being taken by 10 LAs to address obesity and how these actions countered the perceived causes of obesity using the Wider Determinants of Health model [5]. Of 280 actions, almost 60% targeted Individual Lifestyle Factors (ILF), with 7.1%, 16.8% and 16.4% targeting Social and Community Factors (SCF), Living and Working Conditions (LWC) and Wider Conditions (WC) respectively. Conversely, 60% of causes were spread across the LWC and WC, with 16.4% regarded as ILF. This study showed a stark mismatch between LA actions on obesity and its perceived causes, which informed the development of a WSA to obesity in LAs.</p> <p>Policy guidance issued in 2014, including from PHE, indicated that proximity to fast food outlets increased the likelihood of consumption of such food. Recognising that these guidelines were not evidence-based, LBU conducted the first UK study to establish the association between food exposure and childhood obesity, considering household, school and</p>		

commuting environments in 13,291 children aged 11-12 [6]. There was no evidence of a positive association between either the number of food outlets or the proximity to the nearest food outlet and childhood obesity in any of these environments. This was true for all food outlets, including takeaways and fast-food outlets. These data refuted a number of assertions in the opinion-based guidance at the time.

In 2018 LBU published a call to the media on behalf of the Association for Study of Obesity, Obesity Empowerment Network, Helping People Overcome Obesity Problems and World Obesity Federation [7]. This paper cited examples of where the UK media stigmatised those living with overweight and obesity.

3. References to the research

Selected outputs are original research conducted by LBU academics [**in bold**], with all but one led by LBU. All but one output are published in quartile 1 journals that reflect the specific foci of research presented and are peer reviewed by experts. Outputs 4 and 5 were endorsed by PHE who funded this national project through competitive tender: **Gately PJ, Sahota P, Cooke CB, McKenna J, Radley D, South J**, White A, White J, **Bagnall AM, Gorse C, Tench R**, Riley J. A whole systems approach to tackling obesity, Public Health England, 2015-18. £1,000,000.

- [1] **Nobles JD, Griffiths C, Pringle A and Gately P.** (2016). Design Programmes to Maximise Participant Engagement: A Predictive Study of Programme and Participant Characteristics Associated with Engagement in Paediatric Weight Management. *International Journal of Behavioral Nutrition and Physical Activity*, 13, 76. <https://doi.org/10.1186/s12966-016-0399-1>
- [2] Kulendran M, King D, Schmidtke KA, **Curtis C, Gately P**, Darzi A and Vlaev I. (2016). The use of commitment techniques to support weight loss maintenance in obese adolescents. *Psychology & Health*, 31(11), 1332-1341. <https://doi/full/10.1080/08870446.2016.1204452>
- [3] **Staniford LJ, Radley D, Gately P**, Blackshaw J, Thompson L and Coulton, V. (2020). Employees' experiences of participating in a workplace-supported weight management service: a qualitative inquiry. *International Journal of Workplace Health Management*, 13 (2), 203-221. <https://doi.org/10.1108/IJWHM-04-2019-0050>
- [4] **Bagnall AM, Radley D**, Jones R, **Gately P, Nobles J**, van Dijk M, Blackshaw J, Montel S, and **Sahota P.** (2019). Whole systems approaches to obesity and other complex public health challenges: a systematic review. *BMC Public Health*, 19(1), 8. <https://bmcpublihealth.biomedcentral.com/articles/10.1186/s12889-018-6274-z>
- [5] **Nobles J, Christensen A**, Butler M, **Radley D, Pickering K, Saunders J, Weir C, Sahota P** and **Gately P.** (2019). Understanding how Local Authorities in England address obesity: a wider determinants of health perspective. *Health Policy*, 123(10), 998-1003. <https://doi.org/10.1016/j.healthpol.2019.07.016>
- [6] **Griffiths C**, Frearson A, Taylor A, **Radley D** and **Cooke C.** (2014). A cross sectional study investigating the association between exposure to food outlets and childhood obesity in Leeds, UK. *International Journal of Behavioral Nutrition and Physical Activity* 11,138. <https://doi.org/10.1186/s12966-014-0138-4>
- [7] **Flint SW, Nobles J, Gately P and Sahota, P.** (2018). Weight stigma and discrimination: a call to media. *The Lancet Diabetes and Endocrinology*, 6(3), 169-170. [https://doi.org/10.1016/S2213-8587\(18\)30041-X](https://doi.org/10.1016/S2213-8587(18)30041-X)

4. Details of the impact

While the World Health Organisation (WHO) acknowledge that the growing obesity epidemic is one of the world's most visible, yet most neglected public health problems, LBU and MoreLife are having a significant impact both nationally and internationally through: (i) improved obesity treatment, (ii) addressing the challenges of obesity in LAs across England and beyond, and (iii) changing UK childhood obesity policy.

(i) Improving Obesity treatment:

LBU's programme of research, underpinning continuous improvement in MoreLife's WMSs, has directly benefited over 72,000 children and adults during the audit period. Reach of these

evidence-based WMSs that produce significant reductions in weight and associated clinical, social and emotional benefits continues to increase with over 14,000 children and adults benefitting in 2020. Computer scientists at LBU facilitated the transfer of 8,000 participants from face-to-face to online support within a week of the start of the first national lockdown due to the COVID-19 pandemic. Based on this work and the evidence-based reach and significance of their WMSs, in December 2020 MoreLife secured two out of 12 provider contracts for two of three levels of NHS England's new national digital WMS programme, which is expected to deliver to circa 340,000 people over the next three years [A].

MoreLife provides a range of tier 1, 2 and 3 WMSs for children, families, adults, businesses, the NHS and LAs, across the UK and internationally, and its annual turnover has increased almost 10-fold to over £6 million during this audit period [A]. MoreLife currently deliver substantial WMSs across five Clinical Commissioning Groups in Greater Manchester, in Essex and Suffolk. Adult and child/family WMSs (all tiers) are National Institute for Health and Care Excellence (NICE) compliant, and adhere to the national standards and guidance from PHE and NHS England. LBU and MoreLife have also enhanced professional practice through delivery of training to up to 2,000 professionals each year.

In 2016, MoreLife were commissioned to deliver Suffolk County Council's Integrated Public Health Service (£39M), 'OneLife Suffolk', including a range of WMSs for adults and children for five years, with a subsequent contract extension of two years agreed in Autumn 2020 [B]. This is presented as an exemplary service addressing multiple unhealthy risk factors [C]. MoreLife's 12 week WMSs, with one year follow up, exceed targets expected by PHE (2018) and specified locally by commissioners such as Suffolk, of at least an average of 5% (clinically significant) weight loss, with at least 60% of participants from the 40% most deprived communities. For example, in year four the Enhanced Adult WMS treated 1,679 adults. It is more suitable for adults with higher BMIs, more complex comorbidities, and those who have had repeated attempts at weight loss, including using commercial organisations. At the end of the 3 month programme, weight loss averaged 2.92 ± 3.66 kg ($p < 0.001$), with a BMI reduction of 1.07 ± 1.31 kg.m⁻² ($p < 0.001$) and there was no significant difference by ethnicity or deprivation, demonstrating a consistent positive impact across the population of Suffolk amongst those who engaged with the programme.

While a weight loss of 5% markedly reduces the risk of diabetes and cardiovascular disease and improves metabolic function in liver, fat and muscle, many participants go on to lose more weight. Julie, who was referred to MoreLife in 2018 by a GP, had a BMI of 40 and was living with diabetes. Julie lost 20kg in 9 months, reducing her BMI to 31. Her GP measured clinically significant improvements in her cholesterol and her HbA1c decreased by more than 10% to 45 mmol.mol⁻¹ (in the prediabetic range). Julie said, "*Attending MoreLife is definitely worth it. If I can do it, anyone can do it*". While the significant improvements in health and reduced risk are critical, participants also report benefits to their quality of life. Following a diabetic review, retired grandparent, John, understood that, "*I needed to do something about my weight and lifestyle or else I'd need insulin injections*". His target was 15 stone (95.5 kg), and he lost 19 kg to achieve it. John told MoreLife, "*I had a diabetic review last week and the blood readings were the best since I was diagnosed as a diabetic 20 years ago. I feel so much better in myself both mentally and physically. I can walk for longer without too much pain in my knee....I am enjoying life more and in particular my new grand-daughter.*" [A].

Prior to the launch of the NHS Diabetes Prevention Programme (NDPP) in 2015, MoreLife provided WMSs for 10,000 NHS staff at Imperial College Hospitals, funded by PHE (£134,000), in a bespoke weight loss pilot scheme designed to inform the roll out of the NDPP, which continues to be offered by the NHS [D]. MoreLife have also had significant impact internationally, in a five-year prospective study with Imperial College and Qatar University, where camp and club WMSs were delivered to over 500 Qatari children. A randomised controlled trial of children attending the two-week camp, then a 10-week club programme, showed a significant reduction in BMI SDS (-0.1 ± 0.2 ; $p = 0.0003$) compared to no change in

the control group. Half the intervention group showed decreases in BMI SDS indicative of improved carbohydrate metabolism and decreased cholesterol [E].

(ii) Addressing the challenges of obesity in LAs across England and beyond:

Published in July 2019, our WSA guidance and evaluation were launched in a PHE Health Matters webinar [F]. Chaired by Duncan Selbie (Chief Executive of PHE) and including LBU's **Joanna Saunders**, over 700 individuals attended, the largest ever audience for a Health Matters webinar. This was a collaborative project, which reflects both the reach and significance of the work across LAs in England. As stated in the Foreword to the guide, "*Local authorities were pivotal in helping Leeds Beckett University to develop and test the whole systems approach to obesity guide and resources. Four original pilots coproduced the guide representing the different tiers of local government in England..... Seven additional local authorities tested the guide and 40 others reviewed it and provided feedback. An advisory group provided expert support throughout the programme and the guide was peer reviewed by 6 independent experts in the field.*" [F].

To date there have been over 5,000 downloads of the guide and over 1,000 downloads of the learning report. In addition, the accompanying resources have on average been downloaded 1,500 times each, with the Action Scales Model [used in 6] having the most downloads. While the specific audience would be the 500 LAs in the UK providing strategy, policy and intervention to treat and prevent obesity across the population of the UK, the work has had impact in other areas of public health. Since the launch, the guide has also been cited within recent PHE guidance on: a) Physical Activity - prevention and management of long-term conditions, b) Community-centred public health: taking a whole system approach, c) Using the planning system to promote healthy weight environments, and d) Childhood obesity trailblazer programme, signalling the significance of the work across public health to PHE, not just in obesity.

The process outlined in the guide is currently being used by LAs throughout the UK, evidenced by: reference within numerous policy and strategy documents; reports from those who have applied the process and how it has changed or influenced practice; citations by the local government association; practice guidance documents, and acknowledgements on websites, including the Scottish Government [G].

To illustrate impact, here is a typical example of the use of the WSA in a LA. Balraj Johal, Public Health Manager (Healthy Places) for Dudley Metropolitan Borough Council, notes "*Mapping actions at a borough-wide level for the first time helped partners 'see their place' in the system and how they could contribute to reducing obesity levels. It also revealed how the borough's efforts to combat obesity had focused mainly on lifestyle and environmental interventions, highlighting the imbalance between these and actions targeting more 'upstream' factors like social disadvantage and inequities*" [G].

A WSA is applicable to other complex public health challenges and has informed Gloucestershire's Oral Health Improvement Strategy, Dumfries and Galloway's WSA to physical activity (LBU delivered the training), and will be the backbone of Hertfordshire's mental health and children's health strategy. LBU also provide training and support for organisations who welcome assistance in developing a WSA to complex health issues, including LAs in England but also further afield. LBU are currently providing training for the Scottish Government's WSA to Obesity Early Adopter Sites and are working to bring together key stakeholders in a WSA to obesity in Australia and New Zealand [G].

(iii) Change in UK Government Childhood Obesity Policy (UKCOP):

Citing the importance of the impact of LBU's work on a WSA to obesity, the Government's 2018 UKCOP included for the first time a statement of the importance of a WSA to obesity, "*While there are a number of pioneering local authorities taking bold action, many are not... To help address these challenges, we will develop a trailblazer programme with local authority partners to show what can be achieved within existing powers and understand "what works" in different communities... We will look to the experience of pioneering local authorities and*

international examples such as Amsterdam to identify key areas of learning (58: Including Public Health England and Leeds Beckett University's Whole Systems Obesity....). Participating local authorities will focus on inequalities and ethnic disparities and will share this learning and best practice to support all local authorities to take action.” [H, page 25].

This citation of LBU's work in the UKCOP came about through the Government's Health and Social Care Committee inquiry into childhood obesity [I]. LBU submitted written and oral evidence to this inquiry highlighting the need for a WSA to obesity incorporating: national and local government roles, tackling health inequalities, the soft drinks industry levy, schools and physical activity for all, and stigma. Also included was the need to help those children who are overweight or obese through WMSs, with clarity required over commissioning responsibilities [J]. The inquiry report was heavily influenced by LBU's programme of research, with five citations of our evidence underpinning two out of eight key areas commended to Government to include in their new UKCOP: “i) Leadership and a whole-system approach to changing culture and the obesogenic environment” and “viii) Support for children living with obesity” [I, page 1].

In the Government's UKCOP, in addition to the citation of our WSA to obesity, evidence from LBU underpinned four other areas [H]: recognition that national government leadership is crucial in supporting local government powers and action [H, page 25]; a commitment to review how the least active children are being engaged in physical activity and how the primary PE and Sport Premium is being used to ensure Government investment helps all children to lead active lives [H, page 27]; and clarity on the role of the National Child Measurement Programme giving LAs the opportunity to connect parents with WMSs [H, page 26]. LBU's work with LAs on a WSA to obesity demonstrated that local environmental factors can have a positive and negative effect on prevention and treatment of obesity, and the importance of such factors contributing to an obesogenic environment was also recognised in the UKCOP [H, page 25-26].

The All-Party Parliamentary Group on Obesity (APPGO) also reported on the landscape of obesity services in May 2018, with contributions from LBU, and 6 out of 18 references citing LBU's research [K]. The report also made recommendations to the UKCOP and for the government's approach to adult obesity, which included support for a Whole Systems Approach at national and local level and the importance of treatment through WMSs, as well as acknowledging the need to deal with the stigmatisation and discrimination of those who are overweight or obese [K]. **Professor Paul Gately** is now a member of the strategic council of 16 UK experts formed by the APPGO in 2018 [K]. In addition, he was a major contributor to the Centre for Social Justice's 2017 report on childhood obesity, which was also used to inform the UKCOP in 2018 [L].

5. Sources to corroborate the impact

- [A] MoreLife website. [Expert Case Reviews - Weight Loss - MoreLife UK \(more-life.co.uk\)](https://www.more-life.co.uk/)
- [B] OneLife Suffolk, Integrated Public Health Service website. <https://onelifesuffolk.co.uk/>
- [C] Kings Fund Report, Chapter 7, Tackling Multiple Unhealthy Risk Factors (2018) [KF report](#)
- [D] Pilot study for national NHS Diabetes Prevention Programme. [NHS England](#)
- [E] Weight-management with Qatari children: a prospective cohort study. [Lancet](#)
- [F] 1. [Gov.Health matters: WSA to obesity](#); 2. [Gov.WSA.guide](#); 3. [Gov.WSA.learning](#).
- [G] PDF of Sources to corroborate impact for a whole systems approach.
- [H] [UK Government's Childhood obesity policy, 2018](#)
- [I] The Health and Social Care Committee Inquiry, May 2018. [Childhood obesity: time for action](#)
- [J] LBU written evidence submitted to The Health and Social Care Committee: [Evidence](#)
- [K] The APPGO review of obesity services (May 15 2018) [APPGO website](#). Members of the APPGO strategic council, [Members](#)
- [L] [Centre for Social Justice, 'Off the scales: Tackling England's child obesity crisis', 2017](#)