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| <p>Institution: Leeds Metropolitan University</p> |
| <p>Unit of Assessment: Unit 26 – Sport and Exercise Sciences, Leisure and Tourism</p> |
| <p>Title of case study: Obesity treatment, professional practice, policy and public understanding: Leeds Metropolitan University and MoreLife</p> |
| <p>1. Summary of the impact: Our sustained impact in obesity treatment began in 1999 with Europe’s first residential camp programme for overweight and obese children. Our impact on treatment grew sufficiently to warrant the formation of a dedicated spin out company, MoreLife. Underpinned by our research, MoreLife is an award winning, Department of Health accredited provider, delivering specialist weight management services, both nationally and internationally. Through NHS and other contracts we are delivering high quality, evidence based services to over 3,500 adults and 3000 young people per year. Our impact on the policy and practice of obesity treatment and public understanding continues in the UK and has been extended internationally.</p> |
| <p>2. Underpinning research: Our key findings demonstrate that residential weight loss camps can be efficacious, both acutely and in the longer term [1,4]. Our research has also showed that it is necessary to combine physical activity, healthy eating, education and behaviour change with fun, enjoyment and development of self-competence to achieve efficacious obesity treatment interventions with young people. We have also provided evidence that changes in activity and eating behaviours associated with our interventions produce clinically significant reductions in measurements indicative of reduced cardiovascular and metabolic disease [4,5]. For example, children on camp programs between 1999 and 2002 were compared with overweight and obese children of similar ages who were not camp attendees. Campers, who stayed for a mean of 29 days, lost 6.0 kg, reduced their BMI by 2.4 units, and reduced their BMI SD scores by 0.28. Fat mass decreased significantly (from 42.7 to 37.1 kg), whereas fat-free mass did not change. In contrast, both comparison groups gained weight during this period. Camp attendees also showed significant improvements in blood pressure, aerobic fitness, and self-esteem [4].</p> <p>MoreLife is underpinned by research which began when Professor Paul Gately (Chief Executive) undertook his PhD at Leeds Metropolitan University, evaluating the experiences of over 1000 children who attended a US weight loss camp between June 1994 and August 1997. His PhD was supervised by Professor Cooke (Reader) and they have continued researching obesity since that time. At the time of Professor Gately’s PhD there was no research evidence regarding the efficacy of weight loss camps in terms of either acute effects or follow up data, which formed the basis of the earliest publications using data from the US [1]. Based on this early research evidence from the US, the first European residential camp was established at Leeds Metropolitan University in 1999. From its inception the camp programme and associated day camp and clubs programmes have undergone rigorous evaluations to support refined delivery of interventions based on evidence based practice [3,4,5].</p> <p>Our early research focussed on establishing the efficacy of a weight loss camp combining diet, physical activity, education and behaviour change, as a mode of treatment for overweight and obese children (acute responses and longer term follow up) (Gately (lecturer, professor 2004) and Cooke (reader, professor 1998) [2]). As the camp programme became established through evidenced based practice, other more specific research was undertaken. This included validation of body composition assessment in overweight and obese children (which led to a PhD for Radley supervised by Cooke and Gately and subsequent employment as a Research Fellow, left Leeds Met 2008), funded by the National Heart Research Fund (NHRF 3) [3]. Dietary randomised controlled trials (which led to a PhD by Duckworth, now staff, supervised by Gately (professor) and King (professor)) were funded by Glaxo Smith Kline. Clinically significant health risk factors were also shown to improve with our interventions, such as lipid profiles and sub-fractions (PhD by Hobkirk, employed at another university 2011, also supervised by King and Gately) [5].</p> <p>Recent research has challenged established mainstream views, including those of the health ministry that paediatric obesity increases linearly with deprivation [6] (Griffiths, PhD bursary student supervised by Cooke and Gately, staff 2008). There are 35 peer reviewed journal articles and over 350 national and international conference presentations underpinning the impact of MoreLife on the effective treatment of obesity.</p> |
| <p>3. References to the research: All peer reviewed journal articles (bold names indicate current</p> |

Leeds Met staff):

- [1] **GATELY, P. J., COOKE, C. B.**, BUTTERLY, R. J., KNIGHT, C. & CARROLL, S. (2000) The acute effects of an 8-week diet, exercise, and educational camp program on obese children. *Pediatric Exercise Science*, 12, 413-423.
<http://journals.humankinetics.com/AcuCustom/Sitename/Documents/DocumentItem/12205.pdf>
- [2] **GATELY, P. J.**, RADLEY, D., **COOKE, C. B.**, CARROLL, S., OLDROYD, B., TRUSCOTT, J. G., COWARD, W. A. & WRIGHT, A. (2003) Comparison of body composition methods in overweight and obese children. *Journal of Applied Physiology*, 95 (5) 2039-46. Funded through Grant 3 (see below). DOI: 10.1152/jappphysiol.00377.2003 / <http://www.ncbi.nlm.nih.gov/pubmed/14555670>
- [3] WALKER, L. L. M., **GATELY, P. J.**, BEWICK, B. M. & HILL, A. J. (2003) Children's weight-loss camps: psychological benefit or jeopardy? *International Journal of Obesity*, 27, 748–754. Funded through Grant 1 (see below). DOI: 10.1038/sj.ijo.0802290
<http://www.nature.com/ijo/journal/v27/n6/full/0802290a.html>
- [4] **GATELY, P. J., COOKE, C. B.**, BARTH, J. H., BEWICK, B. M., RADLEY, D. & HILL, A. J. (2005) Children's residential weight-loss programs can work: a prospective cohort study of short-term outcomes for overweight and obese children. *Pediatrics*, 116 (1) 73-7. Funded through Grant 1 (see below). DOI: 10.1542/peds.2004-0397 / <http://pediatrics.aappublications.org/content/116/1/73>
- [5] **KING, R. F.**, HOBKIRK, J. P., **COOKE, C. B.**, RADLEY, D. & **GATELY, P. J.** (2008) Low-density lipoprotein sub-fraction profiles in obese children before and after attending a residential weight loss intervention. *Journal of Atherosclerosis and Thrombosis*, 15 (2), 100-7. Funded through Grant 2 (see below). DOI: 10.5551/jat.E490 / https://www.ijstage.jst.go.jp/article/jat/15/2/15_E490/pdf
- [6] **GRIFFITHS, C., GATELY, P.**, MARCHANT, P. and **COOKE, C. B.** (online ahead of print 2013) Area Level Deprivation and Adiposity in Children: Is the Relationship Linear? *International Journal of Obesity*, 37: 486–492. DOI: doi:10.1038/ijo.2013.2 / <http://www.nature.com/ijo/journal/v37/n4/full/ijo20132a.html>

Grants

1. **Gately and Cooke** (1999-2000) The efficacy of a residential weight loss programme involving exercise, diet and behaviour modification on a sample of obese and overweight children, £46,000, **National Heart Research Fund 1**.
2. **Gately and Cooke** (2000-2003) The assessment of the acute and chronic effects of a successful residential weight loss programme using appropriate criterion measures for body composition, cardiopulmonary function and risk factors for cardiovascular disease in a sample of overweight and obese children, £146,000, **National Heart Research Fund 2**.
3. **Gately and Cooke** (2000-2001) The validation of the DXA as an appropriate criterion measure of body composition using a multicomponent method, £20,000, **National Heart Research Fund 3**.

4. Details of the impact: MoreLife is a spin out company of Leeds Metropolitan University providing specialist and community weight management services across the UK and internationally. There are three elements to the impact of MoreLife: treatment, professional practice, and policy and public understanding [A]. These relate to improved health and welfare for participants, development of training and resources to enhance professional practice and projected economic benefits through effective treatment.

Treatment: We are now treating more than 3,500 adults and 3,000 young people per annum, making us the largest provider of such services in the UK. The evidence provided by the underpinning research has facilitated the growth in young people and adults treated as more NHS and other contracts were secured by the University from 1999 and since February 2011 by

Impact case study (REF3b)

MoreLife. Research demonstrating how MoreLife interventions decrease cardiovascular and metabolic disease risk and enhance the quality of life and enjoyment of those who attend their interventions has been important in engaging new NHS and other major clients, as well as refining and maintaining high quality services to existing clients. This underpins the accreditation and recognition of our treatment services by the Department of Health [B], the NHS [C] and government advisors [D]. Further evidence of impact is associated with national awards [E] and recognition within the NHS from PCTs and others that commissioned treatment and other services [D,E,F], as well as from individuals and their families who have received treatment [A].

MoreLife has delivered treatment services to more than 10,000 adults and 12,000 young people. Annual numbers of those treated have increased significantly since the company has spun out, increasing our impact. Service delivery models offered for young people and adults include [A]:

- Specialist - multidisciplinary services involving a range of professionals (Hospital consultant, GP's, Dieticians, Clinical Psychologists, physiotherapists and exercise specialists) delivered as 1:1 or group sessions.
- Community - Face to face, group supports.
- Self-care – Web based, virtual world, telephone, skype or text support.

The impact of MoreLife treatments on the lives of young people and adults is multi-factorial and includes: significant improvement in weight management through behaviour change applied to physical activity and healthy eating, improvement in self-confidence, physical self-worth, physical competence and physical fitness. There is also a clinically significant decrease in cardiovascular and metabolic risk factors associated with obesity, such as body composition (BMI, waist circumference, percentage body fat and fat mass), blood pressure, lipid profiles, and psychological concerns such as worries about body shape and size. Such impacts improve the physical, social and emotional health of participants and contribute to a decrease in the current and future economic resources required by the obese population.

Professional Practice: We are also commissioned by public sector organisations to undertake reviews of their service provision for obesity. We have employed our knowledge and expertise in delivery together with our understanding of the evidence base to support local health commissioners to establish best practice weight management systems [E,F,G], which has been commended by the NHS [C]. We have developed and delivered specialist and community weight management services to overweight and obese people in more than 30 PCTs/Local authorities since 2007 through £18.5 million worth of NHS and other contracts. Although they are based on a common set of elements, our services are flexible and we tailor them to the needs defined by the local context, which includes consideration of the participants, the local services and staff that we work with, as well as the specific requirements of the commissioners. This approach helps achieve sustainable local service provision through improvements in local standards of professional practice which increases legacy and long term impact. Through our extensive training programmes we have significantly improved the capability of over 1000 professionals involved in the delivery of treatment services [A,B,C,E,F].

Policy and Public Understanding: MoreLife also has impact through advisory roles, including informing policy. Gately is a spokesperson for the Department of Health on obesity [G] and sits on the British Heart Foundation Prevention and Care Committee. MoreLife contributed to the work of The British Association of Sport and Exercise Sciences on obesity and advised on national guidelines for physical activity. Impact in the private sector is exemplified by Gately's role in McDonald's 20% reduction in calories in Happy Meals from 2012. International impact is exemplified by a grant awarded with Imperial College, London and Qatar University for a 5 year prospective study to assess the impact of MoreLife treatment services in Qatari young people [H]. Our cross-sectional and longitudinal research on area level deprivation and obesity challenged data provided from the National Child Measurement Programme to the health ministry. We showed that the relationship between obesity and deprivation is not linear [6]. This has major implications for policy and targeting of resources. The media impact of this research was extensive, reaching an audience of 23,461,698 (estimated by standard metrics [I]). Prof Gately and MoreLife have significantly impacted the public understanding of obesity through the media reach associated with their interventions. A selection of TV shows includes: Old Before My Time, Nov 2013, BBC3; Tonight: The Unhealthy Generation, September 2013, ITV1, 2.25m viewers; BBC Breakfast, August 2013, Oct 2013, BBC1, 1.5m viewers; Big Body Squad April 2013,

Impact case study (REF3b)

Channel 5, 0.86m viewers; Too Fat to Toddle, 2008 ITV1, 3.89m viewers; The Duchess in Hull, 2008, ITV1, 5.24m viewers.

Obesity is classified as an epidemic by the WHO, with over one billion overweight adults worldwide and an estimated 22 million children under five classified as obese. Obesity increases the risk of heart disease, type 2 diabetes, stroke, some forms of cancer, arthritis and respiratory disease and translates into healthcare costs of more than £5 billion every year in the UK. Overweight and obese children have measurable clinical risk for type 2 diabetes, metabolic syndrome and cardiovascular diseases that until recently were only associated with adulthood. The Call to Action on Obesity (2011) recognised the need for greater investment in the treatment of adult and childhood obesity, which aligns with the vision and impact of MoreLife. The reach and significance of our work continues to increase in the UK and internationally through interventions, professional development, policy and public understanding in what is recognised as a major public health issue.

5. Sources to corroborate the impact:

[A] MoreLife Website provides a number of sources to corroborate the impact: <http://www.more-life.co.uk/Default.aspx?PageName=NewHomePage>

[B] MoreLife (previously CWM) has been a Department of Health recognised trainer and provider of childhood weight management services since 2009. The Child Weight Management Programme and Training Providers Framework was established to support commissioning of weight management services for children and young people.

<https://www.gov.uk/government/publications/child-weight-management-programme-and-training-providers-framework>

[C] Cited as an exemplary model of health innovation and education in the 2009 annual report (page 37) by Sir David Nicholson, the Chief Executive of the NHS. "The work being done jointly by the Carnegie Weight Management Programme, Leeds Metropolitan University and NHS Rotherham is demonstrating the benefits of bringing together education, research and service provision.....By focusing on families working as a team, and having local families supporting each other and changing their daily routines together, that intake of 38 children had lost over 100 kilograms between them."

http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_099700.pdf

[D] MoreLife (previously CWM Health) was highlighted as an example of a community intervention that was delivering encouraging results in the government's foresight report (2007)(page 68-69)

<http://www.bis.gov.uk/assets/foresight/docs/obesity/17.pdf>

[E] MoreLife and its partners NHS Rotherham were winners of the Excellence in Commissioning Award as part of the Health and Social Care Awards in 2009. "CWM have provided NHS Rotherham with excellent professional support, training and delivery in the area of childhood obesity. Their work has been a major factor in our Childhood Obesity Strategy's success." NHS Rotherham (now Rotherham Council)– Public Health Specialist (Obesity Lead)

[F] "MoreLife have been providing weight management services for adults and families in Essex since July 2011 and as the strategic commissioner for these services I have been delighted with the outcomes that have been achieved thus far. MoreLife have proved themselves to be both an innovative and flexible service provider and have made a major contribution to the evidence base with respect to the value of adopting an outcomes based commissioning model which continues to inform the development of an Essex wide strategy for future commissioning of obesity and weight management services" Assistant Director of Public Health, Essex County Council

[G] Professor Gately was a national spokesperson for the Department of Health's Change4Life campaign in 2008, which was significant in raising public awareness and providing examples and support for tackling obesity:

http://www.youtube.com/watch?v=mUAmD4xYB0M&desktop_uri=%2Fwatch%3Fv%3DmUAmD4xYB0M&app=desktop

[H] Qatari National Research Fund awarded a grant under the National Priorities Research Program – Exceptional Proposals (NPRP-EP): NPRP X - 036 - 3 - 013 entitled "Adapted Cognitive Behavioural Approach to Addressing Overweight among Qatari Youth" of \$5m over 5 years, with Qatar University and Imperial College London. Contact Principle Investigator Qatar University.

http://www.qnrf.org/awarded_proposals/

[I] PR report, PDF available from Leeds Metropolitan University.