

## REVIEW

# Animal obesity: What insights can a one health approach offer when it comes to veterinarians ‘making every contact count’?

Jenny Lynden<sup>1</sup>  | Teresa Hollands<sup>2</sup> | Jane Ogden<sup>3</sup>

<sup>1</sup>School of Psychology and Counselling, Faculty of Arts and Social Sciences, The Open University, Milton Keynes, UK

<sup>2</sup>School of Veterinary Medicine, Faculty of Health and Medical Sciences, University of Surrey, Guildford, UK

<sup>3</sup>School of Psychology, Faculty of Health and Medical Sciences, University of Surrey, Guildford, UK

## Correspondence

Jenny Lynden, School of Psychology and Counselling, Faculty of Arts and Social Sciences, The Open University, Milton Keynes MK7 6AA, UK.  
Email: [jenny.lynden@open.ac.uk](mailto:jenny.lynden@open.ac.uk)

## Abstract

There is an overweight/obesity crisis in both human and companion animal populations globally. Veterinarians have an ethical obligation to protect animal welfare and, therefore, have a duty to intervene by supporting their clients in changing care plans to mitigate and prevent pet overweight/obesity. Currently, there is limited evidence in veterinary contexts for when and how this can be done effectively. In contrast, a more comprehensive body of literature has been developed on how human healthcare practitioners ‘make every contact count’ (MECC). This review begins by briefly exploring the cross-species multifactorial causes of overweight/obesity, before considering the literature regarding whether veterinarians reliably address overweight/obesity and the obstacles they encounter. The review then explores the evidence from human healthcare contexts in terms of how person-centred and health ‘coaching-style’ MECC interventions have supported weight management in adult and child populations and the barriers practitioners face when implementing these interventions. The final section interprets this literature to provide a fresh ‘lens’ through which veterinarians’ concerns can be understood. Recommendations are made for enhancing veterinarians’ capacity to develop the knowledge and skills needed for successful outcomes when MECC. Opportunities for developing local multi-stakeholder/agency teams taking a ‘one health’ approach are considered.

## KEYWORDS

making every contact count, obesity, one health, welfare

## INTRODUCTION

Obesity is a condition where excess body fat has developed to the point that health is adversely affected, and it has become a significant healthcare crisis in human and companion animal populations.<sup>1</sup> Obesity is defined by an excessive accumulation of white adipose tissue. The most popular system for measuring obesity is body condition scoring (BCS).<sup>1</sup> Using a nine-point scale in dogs and cats, a score of 6–7 corresponds to overweight, and 8–9 represents obesity. On a five-point scale, a score of 4 reflects overweight and 4.5 or above obesity.<sup>2,3</sup> In horses, the Henneke scale assesses a BCS of 7 as ‘overweight’, 8 as ‘fat’ and 9 as ‘obese’.<sup>4</sup> The Carroll and Huntington 0–5 scale assesses a BCS of 4 as ‘fat’ and 5 as ‘obese’.<sup>5</sup> It is estimated that between 35% and 50% of the small animal population in the UK is overweight/obese,<sup>6</sup> and this is

mirrored in the UK leisure equine population.<sup>7,8</sup> This scale of obesity (hereafter in this manuscript the term ‘obesity’ is also taken to include animals or people who are overweight but not medically diagnosed as obese) has been identified in adult human populations and is now estimated to affect more than 2 billion people worldwide.<sup>9</sup> As a ‘one health’ concern, obesity leads to premature ageing, insulin resistance, respiratory and orthopaedic disease in all species,<sup>1</sup> as well as endocrinopathic laminitis in equines,<sup>10</sup> shortened lifespan<sup>11,12</sup> and behavioural problems in dogs,<sup>13</sup> and depression and psychosocial problems in humans.<sup>14</sup>

The causes of obesity are multifactorial and include biological, psychological and sociocultural influences, but distinctive similarities across species are now being recognised.<sup>15</sup> A study involving 10,465 mother–child dyads identified serious maternal psychological distress as being associated with early childhood

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial](https://creativecommons.org/licenses/by-nc/4.0/) License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited and is not used for commercial purposes.

© 2022 The Authors. *Veterinary Record* published by John Wiley & Sons Ltd on behalf of British Veterinary Association.

obesity.<sup>16</sup> Other research highlights the role of parental beliefs, including the belief that hunger is the primary cause of infant distress, as being associated with childhood obesity.<sup>17</sup> In a Dutch study, one-third of owners who recognised that low-energy high-fibre forage was appropriate for horses in light to moderate work reported giving their horses more hard feed and less forage when they were not in hard work.<sup>18</sup> In a UK study involving 280 canine owners, 96% reported giving treats (including sausage rolls, cakes, biscuits and crisps) to their dogs, with 69% doing this on a daily basis.<sup>19</sup> This type of owner feeding behaviour has been associated with 'over-humanising', where treat giving is used by owners as the primary form of interaction, communication and bonding with their dogs.<sup>20</sup> Feline obesity has also been associated with owners who report feeding treats to their pets and who use their pet to help them calm down and relax.<sup>21</sup>

There is evidence that human misperception of weight status is an obesity risk factor for both themselves,<sup>22</sup> their children<sup>23</sup> and their pets,<sup>24</sup> suggesting that normalisation of obesity is associated with obesity across species. There is also evidence that cultural attitudes play a part in normalising obesity. In a qualitative study involving 30 adult Jamaican participants, when asked what constituted a healthy weight, the general preference was for 'having on some weight'.<sup>25</sup> This study identified the term 'fluffy' as a local euphemism that idealised a female body with a body mass index (BMI) equivalent to overweight or obesity.

There is evidence of regional variations in obesity for small animal populations<sup>19</sup> similar to those found in human populations,<sup>26</sup> which may reflect the influence of local social networks. This was demonstrated in a longitudinal study of 12,067 people between 1971 and 2003. The risk of obesity increased by 57% if a friend was obese, 40% if a sibling was obese or by 37% if a spouse was obese.<sup>27</sup> This influence may interact with socioeconomic status, where lower income has been associated with obesity in human populations<sup>28</sup> and animal populations.<sup>29</sup>

In response to the multifaceted risk factors for obesity, the World Health Organization has established a global action plan recommending that governments plan multilevel and multiagency interventions to tackle the obesity problem,<sup>30</sup> and the World Small Animal Veterinary Association has set up a One Health Committee to develop an understanding of human-animal shared lifestyles that will inform weight management interventions.<sup>31</sup> As the RCVS veterinary oath places an obligation on veterinarians to both protect animal health and welfare and promote public health, it has been argued that it is their duty to identify and help to address animal obesity with clients, not least in supporting clients to make informed decisions regarding disease prevention and management.<sup>1</sup>

In human healthcare contexts in the UK, the National Health Service Future Forum recommended that primary healthcare practitioners (including general practitioners [GPs], practice nurses, dentists and pharmacists) should 'make every contact

count' (MECC) in helping people to maintain or improve their health and wellbeing.<sup>32</sup> MECC is recognised as being the first stage in a behaviour change pathway that involves healthcare practitioners promoting the benefits of healthy living, exploring client perspectives regarding their lifestyle, and assessing patient motivation and preparedness to change.<sup>33</sup> MECC is recommended regardless of the patient's purpose of contact or the practitioner's speciality.<sup>32</sup> In recent years, the effectiveness of MECC in human healthcare has been explored across a number of domains, including chronic conditions in adults and children, radiography, dentistry, vaccine uptake and smoking cessation during the COVID pandemic.<sup>34–39</sup>

A key question concerns whether veterinarians believe they have a role to play or the skills needed for MECC. While there is a developing body of literature as to whether and how veterinarians engage clients in the weight management of their pets,<sup>24,40–48</sup> this paper also draws on the evidence in human healthcare contexts, which specifically identifies practitioner perspectives on MECC, barriers to MECC and studies identifying when and how MECC has efficacy. This review draws on the available evidence to address veterinarians' questions and concerns about how to support clients in managing animal weight and provides recommendations for veterinarians as well as for future research.

## DISCUSSION

### Do veterinarians reliably address obesity?

Veterinarians are increasingly being encouraged to monitor animal weight and condition during routine consultations, including by exploring owner's perceptions of their animal's condition, feeding and lifestyle factors, as well as by providing support for the owner to make changes to prevent or address pet obesity.<sup>1,40,49,50</sup> However, in reality, it is recognised that many veterinarians do not discuss obesity with clients.<sup>1,40</sup> In a study that analysed veterinarian–client interaction during 123 feline appointments, a weight or diet focus was initiated by the veterinarian in 55 consultations. However, only 25 of those consultations resulted in a two-way veterinary–client weight management interaction that would be associated with veterinarians MECC.<sup>41</sup> A UK study that evaluated veterinary records of 148 dogs over a 12-month interval found that 29% of records mentioned bodyweight as a qualitative statement.<sup>50</sup> Of the 15% that identified obesity, a BCS was recorded for one dog on one occasion. Even when patient obesity is accurately identified, an Australian survey involving 48 small animal practices identified a reluctance to inform owners of their pet's condition.<sup>51</sup> The picture is similar in equine veterinary practice. A USA study found that only 55% of the 74 equine veterinarians surveyed considered equine nutrition to be 'very important' in their practice.<sup>45</sup>

## Obstacles to addressing obesity and MECC in veterinary practice

Veterinarians have identified a lack of time, anticipated problems with owner compliance, and concerns about causing offence or feeling embarrassed due to owner obesity as reasons for avoiding discussing obesity in dogs.<sup>42</sup> In equine practice, a lack of confidence regarding equine nutrition has been cited as a barrier/obstacle.<sup>46</sup> Lack of training in the communication skills needed for MECC may also represent a barrier for veterinarians. In one study that focused on veterinarians' use of language in 98 consultations when discussing weight management with clients, over 64 veterinarian-initiated question-answer sequences involved a simple 'what-type' question, such as 'What are you feeding him?'. This question style elicited clients to report just one or two food items, and only 8% discussed treats or other feeding habits.<sup>44</sup> This contrasts with research that estimates that up to 96% owners report feeding treats,<sup>19</sup> suggesting that veterinarian communication strategies for MECC-type interventions may not elicit accurate client information giving.

Additionally, some veterinarians argue that weight management interventions require a team approach that involves every member of the practice, including receptionists, support staff and veterinary nurses, in different stages of the consultation process.<sup>52</sup> Veterinary nurses have also identified the importance of nurse-run clinics, which can support clients in learning to use BCS, as well as exploring diet, feeding and exercise plans to support weight management.<sup>53</sup> However, there is as yet no empirical evidence to identify roles and role boundaries between veterinary team members. This has been found to be an important barrier for practitioners of MECC in human healthcare contexts, not least in recognising and addressing role ambiguity and role conflict among team members.<sup>54,55</sup>

In summary, it is argued that there is currently limited veterinarian engagement in recognising and discussing pet overweight and obesity with clients<sup>1</sup> and that this is likely to reflect, in part, veterinarian concerns about whether they have the skills and knowledge to intervene appropriately and effectively. Given the limited empirical evidence in the veterinary field for MECC, it is not surprising that veterinarians are reluctant to engage their clients in discussions regarding pet obesity.

## Does the human healthcare system do a better job at addressing obesity?

### Are MECC interventions effective?

There is extensive empirical literature supporting the efficacy of practitioners using person-centred approaches when MECC regarding obesity in both adult and child populations.<sup>56–60</sup> Person-centred approaches integrate some form of 'health coaching' and focus on behaviour management (e.g., goal

setting, self-monitoring for change and managing habitual lifestyle routines) or cognitive behavioural coaching, which recognises the role that cognition (including beliefs associated with self-efficacy, self-esteem and self-worth) plays in directing behaviour.<sup>33</sup> A systematic review and meta-analysis of evidence between 2007 and 2014 confirmed that person-centred approaches based on behavioural science have been effective in promoting weight loss in human patients.<sup>58</sup> Whatever the focus of the person-centred approach being adopted for MECC, all approaches recognise the importance of supporting client empowerment to facilitate change.<sup>61</sup>

A study involving 137 GPs in England and 1882 obese patients suggests that person-centred interventions have efficacy in supporting patients to engage in weight management strategies.<sup>56</sup> Patients in the support group, where practitioners used 'partnership approaches', lost 1.76 kg more weight at 3 months compared to those in the 'advice only' group, and 1.43 kg more weight at 12 months. The support intervention involved GPs being trained to engage with the patient by exploring lifestyle factors and behaviour change. This contrasted with the control group intervention where GPs told or advised patients that their health would benefit from weight loss.<sup>56</sup> In another randomised controlled trial involving 1277 overweight or obese (BMI 25–39.9) adults, participants in the treatment group received tailored interventions designed to increase motivation for behaviour change based on their preparedness to change at 6, 12 and 24 months. Participants in the control group received no treatment intervention. Significant differences were found for the treatment compared to the control group for healthy eating, measured by a reduction in calories and increased fruit and vegetable intake.<sup>57</sup>

Brief interventions delivered by nurses and support staff trained in MECC have also been identified as being effective for helping patients manage obesity and achieve weight loss. In a randomised controlled trial, 537 obese patients (BMI  $\geq$  30) were allocated to either a 'ten top tips' (10TTs) or 'usual care' (control) group. A leaflet designed to promote behaviour change included 'handy hints' for each 'top tip', with a simple tick sheet to keep track of progress on a daily basis. The top tips included simple ways of using food labelling to identify and reduce fat and sugar content, reducing portion sizes and integrating more exercise into daily routines. In the intervention group, nurses and healthcare assistants were trained to deliver a standardised script introducing the leaflet outlining 10TTs, where patients were given a logbook to self-monitor target behaviours and their weight over a 3-month period. They also received guidance on food labelling on a wallet-sized card. At 3 months from baseline, patients in the intervention group lost significantly more weight (1.68 kg) than patients in the 'usual care' control group (0.84 kg).<sup>62</sup> While the results of this study did not suggest that brief interventions were more effective than other weight management interventions, such as consultation with the dietician or external providers (e.g., Weight Watchers), they did

provide evidence that low-cost MECC interventions could be effective.<sup>62</sup>

Perhaps more analogous to veterinary contexts where the affected patient is a dependent, MECC interventions have been shown to have efficacy for weight management in child populations, particularly when they involve multidisciplinary/multiagency teamwork. For example, a nurse-directed intervention, which involved coordination between nurse practitioners, teachers, student counsellors and parents, integrated child wellness and health promotion activities into the school curriculum and extramural activities.<sup>63</sup> Significant differences for reduced TV viewing, increased physical activity and decreases in BMI were identified between baseline and 12 months postintervention. It was claimed that the success of this programme relied upon a 'Health Advisory Committee' at each school, which involved multiple stakeholders in jointly developing a coherent action-based intervention, staff training and coordinating referrals for specialist support (e.g., student counselling for children identified as having low self-esteem or low body image).<sup>63</sup>

The Healthy Exercise and Nutrition for the Really Young (HENRY) programme is a large-scale intervention aimed at reducing obesity in preschool children. The HENRY programme involved training over 8000 community practitioners and other healthcare practitioners across the UK working in health visits, primary care and Sure Start Children's centres to use person-centred strategies. These strategies were aimed at increasing parental confidence in managing feeding practices, eating behaviour, nutrition, play and general parenting skills, including promoting emotional wellbeing.<sup>60</sup> An evaluation of a HENRY parenting course at nine locations across England involving 58 parents at the 8-week follow-up reported increases in parental confidence and more frequent parent and child consumption of vegetables and fresh fruit and a reduction in the frequency of eating cakes/pastries and sweets/chocolates compared to baseline measures.<sup>59</sup>

## Barriers for practitioners MECC in human healthcare contexts

Despite the success of MECC interventions in human healthcare contexts, there is a growing understanding of the significant barriers practitioners face for MECC, including their perceptions regarding the causes of obesity and their role in supporting weight management.<sup>64</sup> Practitioners have questioned whether they have the skills and knowledge to intervene effectively and safely, especially in terms of avoiding psychological harm to patients.<sup>64</sup> Practitioners have also identified experiences of role conflict (i.e., whether it is their role to intervene in patient weight management) and role ambiguity with colleagues, which is associated with MECC in multidisciplinary contexts.<sup>61</sup>

Evidence suggests that there are challenges in terms of how practitioners perceive their role in MECC.

Historically, GPs have not believed it was their role to advise patients about weight management.<sup>65</sup> This perception conflicts with patient expectations that overweight should be seen and treated as a medical problem.<sup>66</sup> In a survey comparing perceptions of the causes of obesity between GPs and members of the general public, GPs were more likely to identify behavioural, structural, social and psychological factors, while lay people were more likely to endorse biological causes.<sup>66</sup> These findings are similar to an earlier study in which patients rated a gland/hormone problem, slow metabolism and stress as causes of obesity, whereas GPs rated overeating as the main cause.<sup>67</sup> It is not clear the extent to which GP perceptions of the causes of obesity are associated with weight bias or stigmatisation,<sup>68</sup> but there is certainly evidence that some GPs associate patients with obesity as 'noncompliant', 'lazy', 'sloppy', 'lacking self-control' and 'less adherent to lifestyle recommendations'.<sup>69</sup> These kinds of messages have been perceived by patients who have identified a GP focus on individual responsibility and report no psychological support or individualised advice being offered by their GPs.<sup>70</sup> This disparity between GP and lay perceptions of the causes of obesity has important implications for the type of intervention adopted by GPs and its likelihood of success in supporting weight management. It has long been understood that practitioner-patient agreement regarding medical problems and expectations for care are associated with better outcomes and higher levels of patient adherence.<sup>71</sup> Therefore, the mismatch between GP and patient views of the causes and management of obesity represents an important barrier for GPs MECC.<sup>67</sup>

Discrepancies in level and type of engagement also vary for practice nurses across primary healthcare settings, including when to raise concerns about weight management. In a study involving 47 nurses in two inner London primary care organisations, 70% stated they raised the issue of weight when a medical problem was identified and 14% when there was no identified medical problem.<sup>72</sup> Nurses are more likely to recognise biological and genetic factors as causes of obesity and view weight management more positively by seeing obesity as treatable and are less likely to attribute 'blame' to the patient.<sup>73</sup>

Many practitioners, including nurses, have identified inadequate resources and training as a key barrier to MECC. Lack of time is cited as one of the most important concerns, as is a lack of training in the skills they perceive are needed to address patient obesity.<sup>64,68,74</sup> In one study involving semi-structured interviews with 22 nurses in inner London primary healthcare contexts, participants reported a lack of training, particularly in terms of using nonmedical approaches for working with patient motivation and behaviour change. This led participants to report reduced success for having an impact in supporting patients by inducing behaviour change to manage their weight.<sup>64</sup> Practitioners' concerns were further highlighted by a systematic review that identified a lack of obesity-specific training, leading practitioners to feel 'powerless' and 'professionally unprepared', and

that obesity management had been placed on them without 'careful thought'.<sup>70</sup> Perhaps linked to these concerns, practitioners have reported fear of causing offence and negative emotional responses as key barriers in raising weight management issues.<sup>68,70,75</sup> In particular, practitioners have identified concerns that raising weight management with otherwise healthy patients may impair their professional working relationship or worse, alienate patients from the healthcare system. There were concerns regarding opening up 'a Pandora's box' of psychological concerns.<sup>72</sup> This sense of ambivalence and discomfort about raising weight issues may also be linked to practitioners' lack of training in effective communication strategies.

Communication methods or styles (such as the use of direct language or euphemisms) by physicians can also be an obstacle for MECC, affecting patient outcomes. An experimental study of 338 patients who had their BMI assessed was given a vignette so they could imagine being told by a doctor that they were either 'obese' or that 'your weight may be damaging your health'. The results showed a significant interaction between BMI and the impact of the terms used on the patients' beliefs about the problem and their emotional response. Those patients who were not obese (BMI < 30) were more likely to believe obesity would result in serious consequences and had a greater emotional response when the term 'obese' was used. Patients who were in the obese category (BMI ≥ 30) reported higher levels of anxiety and depression when euphemism was used.<sup>76</sup> It is evident that practitioner language may influence patient responses and therefore patient outcomes.

Another barrier for practitioners MECC concerns role ambiguity and role conflict when working in teams. The introduction of guidance for MECC in primary health- and social-care contexts in 2006 by the National Institute for Health and Care Excellence led to more role complexity and blurred boundaries between healthcare practitioners.<sup>54,77</sup> A systematic review of 45 qualitative studies across a number of countries identified significant role ambiguity and role conflict between GPs and practice nurses as to who should provide weight management guidance in contexts when patients had complex chronic conditions.<sup>54</sup> These concerns over role ambiguity, and in particular, establishing role boundaries, have extended to other practitioners, such as health visitors and nursery nurses.<sup>55</sup> Additionally, there have been concerns about training nonprofessional staff in MECC across a range of contexts, including leisure centres and community pharmacies.<sup>61</sup> Proponents argue that the advantages of this type of approach reduce costs and barriers for patients and thus outweigh the concerns.<sup>61</sup> However, others question whether nonprofessional staff should adopt an MECC role, not least in terms of whether they have the legitimacy, skills and knowledge to intervene in this way.<sup>61</sup>

In summary, the literature in human healthcare contexts demonstrates that MECC interventions can have efficacy in supporting weight management, but these interventions involve far more than information-

giving and guidance. Person-centred 'coaching-style' interventions require complex communication skills and an understanding of human psychology in motivating human behaviour change, as well as supporting its maintenance. Additionally, there is evidence that multidisciplinary/multiagency MECC interventions can be successful, but this type of teamwork requires coordinated stakeholder engagement and cooperation.

## How could veterinarians engage in MECC to support clients to manage animal weight?

The evidence in human healthcare settings highlights the complex issues that need to be understood when MECC occurs in veterinary contexts. Understanding veterinarians' perspectives on what their role is, and how and when this role is enacted, is also important. This is likely to be informed by their understanding of client behaviour in relation to pet obesity and perception of client motivation to adhere to weight management care plans.

There is some evidence in veterinary healthcare contexts regarding the impact of psychological and sociocultural factors and its association with pet obesity,<sup>20,21,29,78,79</sup> but as yet, there are no data for understanding how these factors may interact with veterinarians' attitudes or skill sets in MECC to support clients in managing pet obesity or the impact of these interactions on the efficacy of the interventions in pet weight management. For example, while there is some evidence regarding discrepancies between veterinarians' and clients' perspectives regarding the causes of obesity and suitable animal care plans,<sup>24</sup> we do not yet understand whether the level of congruence between veterinarian and client perspectives has an impact on supporting client behaviour change.

There is an increasing interest in how veterinarians can engage in MECC-type interventions in small animal veterinary practice. One approach supports 'nutritional counselling' with pet owners, which recognises the owner's preparedness to change based on the transtheoretical model of change.<sup>80</sup> The transtheoretical model directs practitioners to (i) build partnerships with the client; (ii) focus on the client's agenda for change; (iii) evoke change talk; and (iv) plan for change.<sup>81</sup> Veterinarians are guided to match their interventions to the different stages of client motivation for change. For example, if a client is ambivalent about making changes to their pet's diet, exploring their knowledge and interest in understanding the health risks associated with pet obesity is believed to be more effective, at that stage, than offering advice and guidance for pet weight management.<sup>80</sup>

Similarly, in equine practice, the importance of interventions that support owner understanding about the relationship between risk factors for diseases such as laminitis and environmental/lifestyle factors, including diet and exercise, have been identified.<sup>82,83</sup> These approaches identify the need

for equine owners to be supported in developing a system of vigilance and monitoring (including the accurate use of BCS) as part of their equine management systems to prevent and manage equine obesity. However, there is no empirical evidence using randomised controlled trials to identify whether these 'partnership approaches' with clients work in either small animal or equine veterinary contexts.

While there are a number of veterinarians advocating for MECC-type interventions,<sup>1,40,49,50</sup> given the research already discussed in human-health contexts, much is still to be understood about veterinarians' concerns and whether their training has prepared them for supporting human behaviour change, including when they may have concerns about the psychological wellbeing of their clients. As identified in human healthcare contexts, MECC interventions require practitioners to understand individual psychological (e.g., beliefs associated with self-efficacy or personal effectiveness and self-esteem) and sociocultural differences (which, e.g., influence both perceptions of weight and dietary choices). While recognising that UK veterinary schools currently offer communication skills training, there is an opportunity now to extend this, including at the postgraduate level, to enhance veterinarians' knowledge of human behaviour change, which could increase the efficacy of veterinary person-centred coaching-style interventions in MECC.

The literature in human healthcare contexts already discussed also highlights the gaps in understanding how veterinary team interventions may be more or less effective because, as yet, there is no empirical evidence for how professional, paraprofessional and nonprofessional team members work together in MECC to support clients in reducing pet obesity. It might be expected that the team dynamics in veterinary practice are more complex because care is provided by small- to medium-sized businesses with fewer opportunities for team training and planning across organisations compared to, for example, the National Health Service in the UK context. For example, in equine care contexts, no research has yet explored whether veterinarians, farriers, equine dentists, physiotherapists, nutritionists, trainers, etc., work as a team providing consistent support to clients, or whether these professionals and paraprofessionals experience role ambiguity and role conflict.

Given that, in human healthcare settings, multiple stakeholder engagement and coordination of MECC interventions is seen as important for changing human behaviour and maintaining it, there is a clear opportunity in veterinary practice to develop local multidisciplinary/multiagency partnerships that could comprise veterinarians, veterinary behaviourists and social workers (who are already working in academic and referral centres for counselling), veterinary paraprofessionals and other stakeholders such as canine trainers and groomers, health

coaches and representatives from client groups. This approach would reflect the success of highly diverse multidisciplinary team interventions when MECC in human healthcare contexts.<sup>59,60,63</sup> In a veterinary context, practices such as the use of comparative photographs as pets age to highlight to owners changes in body fat and the use of animal models to demonstrate good BCSs could be integrated into a wide range of veterinary and nonveterinary settings (e.g., grooming parlours, pet food shops, etc.).

Taking a 'one health' approach, these groups could establish partnerships with local-level Primary Care Trusts to coordinate coherent MECC interventions where weight management is an issue for both pets and their owners. This is important because studies have identified the importance of a pet or 'buddy' in supporting owner motivation to engage in weight management.<sup>84,85</sup> For example, in one study, two groups were supported on a weight loss programme. One group ( $n = 36$ ) involved obese human participants and their companion obese dogs, while the other group ( $n = 56$ ) involved obese human participants with no pet. Interventions for both groups included counselling on calorie-controlled diets and encouragement to engage in physical activity. While there was no significant difference across the two groups for mean weight loss in the human participants, there was 14.9% mean percentage weight loss for the dogs, and their BCS improved, on average, from 4.6 to 3.3/5 after 1 year. Participants who had dogs reported higher levels of motivation to engage in more exercise because they felt they had a weight loss 'buddy', took 'parental pride' in engaging in the programme, and reported enjoying participation in joint exercise.<sup>84</sup>

## CONCLUSION

The evidence presented in this review highlights the importance of understanding human behaviour and provides evidence from human healthcare contexts of how MECC can be effective in eliciting weight management, especially when they involve multidisciplinary/multiagency interventions. Taking a 'one health' approach by developing an evidence base drawn from veterinary and human healthcare contexts is important for understanding veterinarians' concerns about when and how to MECC engage clients in pet weight management. This is because we argue that a wider evidence base provides a 'lens' through which veterinarians' concerns can be understood and interpreted, which, in turn, may direct resources towards identifying key areas for future research. Indeed, we contended that taking a 'one health' approach by promoting coordinated interdisciplinary veterinary and human healthcare practitioner teams, which also involve veterinarian training in health-coaching interventions underpinned by knowledge of human psychology, could enhance the efficacy of MECC across both contexts, particularly when humans and their pets share lifestyles together.

## ACKNOWLEDGEMENTS

We would like to thank the reviewers for their guidance and detailed feedback, which improved the paper.

## AUTHOR CONTRIBUTIONS

Jenny Lynden planned and conducted the literature review and wrote a first draft of the paper originally as a chapter for her PhD thesis. Jane Ogden and Teresa Hollands supervised the work and contributed to the manuscript revisions. The paper authored here is the work of Jenny Lynden, Jane Ogden and Teresa Hollands. Jenny Lynden is responsible for the overall content as the guarantor.

## CONFLICTS OF INTEREST

The authors declare they have no conflicts of interest.


## FUNDING INFORMATION

The authors received no specific funding for this work.

## DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article, as no datasets were generated or analysed during the current study.

## ORCID

Jenny Lynden  <https://orcid.org/0000-0001-8470-1637>

## REFERENCES

- Kipperman BS, German AJ. The responsibility of veterinarians to address companion animal obesity. *Animals*. 2018;8(9):143.
- Laflamme D. Development and validation of a body condition score system for cats: a clinical tool. *Feline Pract*. 1997;25:13–8.
- Laflamme D. Development and validation of a body condition score system for dogs: a clinical tool. *Canine Pract*. 1997;22:10–5.
- Geor RJ. Metabolic predispositions to laminitis in horses and ponies: obesity, insulin resistance and metabolic syndromes. *J Equine Vet Sci*. 2008;28(12):753–9.
- Hollands T, Ellis J, Allen D, Salonen L, editors. An assessment of 2 visual methods of fat scoring in the equine to determine the most suitable for client recognition of obesity in their horses. In: *Proceedings of the Congress of the British Equine Veterinary Association*. 2009.
- German AJ, Woods GR, Holden SL, Brennan L, Burke C. Small animal health: dangerous trends in pet obesity. *Vet Rec*. 2018;182(1):25.
- Wyse C, McNie K, Tannahil V, Murray J, Love S. Prevalence of obesity in riding horses in Scotland. *Vet Rec*. 2008;162(18):590.
- Robin C, Ireland J, Wylie C, Collins S, Verheyen K, Newton J. Prevalence of and risk factors for equine obesity in Great Britain based on owner-reported body condition scores. *Equine Vet J*. 2015;47(2):196–201.
- Friedrich M. Global obesity epidemic worsening. *JAMA*. 2017;318(7):603.
- Pollard D, Wylie CE, Verheyen KLP, Newton JR. Identification of modifiable factors associated with owner-reported equine laminitis in Britain using a web-based cohort study approach. *BMC Vet Res*. 2019;15(1):59.
- Kealy RD, Lawler DF, Ballam JM, Mantz SL, Biery DN, Greeley EH, et al. Effects of diet restriction on life span and age-related changes in dogs. *J Am Vet Med Assoc*. 2002;220(9):1315–20.
- Lawler DF, Larson BT, Ballam JM, Smith GK, Biery DN, Evans RH, et al. Diet restriction and ageing in the dog: major observations over two decades. *Br J Nutr*. 2008;99(4):793–805.
- German AJ, Blackwell E, Evans M, Westgarth C. Overweight dogs are more likely to display undesirable behaviours: results of a large online survey of dog owners in the UK. *J Nutr Sci*. 2017;6:1–6.
- Luppino FS, de Wit LM, Bouvy PF, Stijnen T, Cuijpers P, Penninx BW, et al. Overweight, obesity, and depression: a systematic review and meta-analysis of longitudinal studies. *Arch Gen Psychiatry*. 2010;67(3):220–9.
- German AJ. Style over substance: what can parenting styles tell us about ownership styles and obesity in companion animals? *Br J Nutr*. 2015;113(S1):S72–7.
- Ramasubramanian L, Lane S, Rahman A. The association between maternal serious psychological distress and child obesity at 3 years: a cross-sectional analysis of the UK Millennium Cohort Data. *Child Care Health Dev*. 2013;39(1):134–40.
- Redsell SA, Atkinson P, Nathan D, Siriwardena AN, Swift JA, Glazebrook C. Parents' beliefs about appropriate infant size, growth and feeding behaviour: implications for the prevention of childhood obesity. *BMC Public Health*. 2010;10(1):711.
- Visser EK, Van Wijk-Jansen EE. Diversity in horse enthusiasts with respect to horse welfare: an explorative study. *J Vet Behav*. 2012;7(5):295–304.
- White G, Ward L, Pink C, Craigon J, Millar K. "Who's been a good dog?"—Owner perceptions and motivations for treat giving. *Prev Vet Med*. 2016;132:14–9.
- Kienzle E, Bergler R, Mandernach A. A comparison of the feeding behavior and the human–animal relationship in owners of normal and obese dogs. *J Nutr*. 2012(12):2779S–82S
- Kienzle E, Bergler R, Ziegler D. Human–animal relationships of owners of normal and overweight cats. *J Nutr*. 2005;136(7):1947S–50S.
- Robinson E, Oldham M. Weight status misperceptions among UK adults: the use of self-reported vs. measured BMI. *BMC Obesity*. 2016;3(1):21.
- McKee C, Long L, Southward LH, Walker B, McCown J. The role of parental misperception of child's body weight in childhood obesity. *J Pediatr Nurs*. 2016;31(2):196–203.
- Rowe E, Browne W, Casey R, Gruffydd-Jones T, Murray J. Early-life risk factors identified for owner-reported feline overweight and obesity at around two years of age. *Prev Vet Med*. 2017;143:196–203.
- Pearce V, Dibb B, Gaines S. Body weight perceptions, obesity and health behaviours in Jamaica. *Caribb J Sci*. 2014;6(1):1–19.
- Ellis A, Fry R. Regional health inequalities in England. *Regional Trends*. 2010;42(1):60–79.
- Christakis NA, Fowler JH. The spread of obesity in a large social network over 32 years. *N Engl J Med*. 2007;357(4):370–9.
- Davillas A, Benzeval M. Alternative measures to BMI: exploring income-related inequalities in adiposity in Great Britain. *Soc Sci Med*. 2016;166:223–32.
- Courcier EA, Thomson RM, Mellor DJ, Yam PS. An epidemiological study of environmental factors associated with canine obesity. *J Small Anim Pract*. 2010;51(7):362–7.
- Salinas A, Kones R. Barriers to global action plan for the prevention and control of noncommunicable diseases: proposal modifications to the voluntary targets. *J Prev Med*. 2018;3(01):1–5.
- Day M. One Health: the small animal dimension. *Vet Rec*. 2010;167:847–9.
- Field S. NHS Future Forum Summary Report—second phase. London: Department of Health; 2012.
- Varley E, Murfin M. An implementation guide and toolkit for making every contact count: using every opportunity to achieve health and wellbeing NHS Derby. Trent Publications; 2014.
- Haighton C, Newbury-Birch D, Durlak C, Sallis A, Chadborn T, Porter L, et al. Optimizing Making Every Contact Count (MECC) interventions: a strategic behavioral analysis. *Health Psychol*. 2021;40(12):960–73.
- Pallin N, Webb J, Brown L, Woznitza N, Stewart-Lord A, Charlesworth L, et al. Online training resources to aid therapeutic radiographers in engaging in conversations about physical activity and diet: a mixed methods study. *Radiography*. 2022;28(1):124–32.

36. While A. Evidence-based strategies to promote vaccine acceptance. *Br J Community Nurs.* 2021;26(7):338–43.
37. Smith AE, Bharucha T, Marino LV. Making every contact count: recognising obesity in paediatric and young adult cardiology. *Cardiol Young.* 2022;32(1):77–82.
38. Sinclair D, Savage E, O'Brien M, O'Reilly A, Mullaney C, Killeen M, et al. Developing a national undergraduate standardized curriculum for future healthcare professionals on "Making Every Contact Count" for chronic disease prevention in the Republic of Ireland. *J Interprof Care.* 2020;34(4):561–5.
39. Vasikaran V, Soni A, Watson M. Bringing together child health professionals and dental experts to tackle oral health in children. *Br J Gen Pract.* 2020;70(1).
40. German A. Obesity in companion animals. In *Pract.* 2010;32(2):42.
41. Phillips AM, Coe JB, Rock MJ, Adams CL. Feline obesity in veterinary medicine: insights from a thematic analysis of communication in practice. *Front Vet Sci.* 2017;4:117.
42. Cairns-Taylor T, Fordyce P. Mapping discussion of canine obesity between veterinary surgeons and dog owners: a provisional study. *Vet Rec.* 2017;180(6):149.
43. Bartges J, Kushner RF, Michel K, Sallis R, Day M. One Health solutions to obesity in people and their pets. *J Comp Pathol.* 2017;156(4):326–33.
44. MacMartin C, Wheat HC, Coe JB, Adams CL. Effect of question design on dietary information solicited during veterinarian–client interactions in companion animal practice in Ontario, Canada. *J Am Vet Med Assoc.* 2015;246(11):1203–14.
45. Roberts JL, Murray J-A. Equine nutrition in the United States: a review of perceptions and practices of horse owners and veterinarians. *J Equine Vet Sci.* 2014;34(7):854–9.
46. Parker A, Mastellar S, Bott-Knutson R, Daly R, Carroll H. Upper Midwest veterinarian perceptions and confidence levels regarding equine nutrition topics. *J Equine Vet Sci.* 2018;69:108–14.
47. Hockenfull J, Creighton E. A brief note on the information-seeking behavior of UK leisure horse owners. *J Vet Behav.* 2013;8(2):106–10.
48. Scantlebury C, Perkins E, McGowan C, Pinchbeck G, Christley R, Archer D. 'Riding the rollercoaster': veterinary experiences of managing laminitis in practice. *Equine Vet J.* 2014;46(S47):9.
49. Laflamme DP. Understanding and managing obesity in dogs and cats. *Vet Clin Small Anim Pract.* 2006;36(6):1283–95.
50. Raffan E. The big problem: battling companion animal obesity. *Vet Rec.* 2013;173(12):287–91.
51. McGreevy P, Thomson P, Pride C, Fawcett A, Grassi T, Jones B. Prevalence of obesity in dogs examined by Australian veterinary practices and the risk factors involved. *Vet Rec.* 2005;156(22):695–702.
52. Churchill J, Ward E. Communicating with pet owners about obesity: roles of the veterinary health care team. *Vet Clin Small Anim Pract.* 2016;46(5):899–911.
53. Jobson L. How to run weight clinics effectively in practice. *Vet Nurs J.* 2013;28(11):372–4.
54. Van Dillen SM, Hiddink GJ. To what extent do primary care practice nurses act as case managers lifestyle counselling regarding weight management? A systematic review. *BMC Fam Pract.* 2014;15(1):197.
55. Redsell SA, Atkinson PJ, Nathan D, Siriwardena AN, Swift JA, Glazebrook C. Preventing childhood obesity during infancy in UK primary care: a mixed-methods study of HCPs' knowledge, beliefs and practice. *BMC Fam Pract.* 2011;12(1):54.
56. Aveyard P, Lewis A, Tearne S, Hood K, Christian-Brown A, Adab P, et al. Screening and brief intervention for obesity in primary care: a parallel, two-arm, randomised trial. *Lancet North Am Ed.* 2016;388(10059):2492–500.
57. Johnson SS, Paiva AL, Cummins CO, Johnson JL, Dymont SJ, Wright JA, et al. Transtheoretical model-based multiple behavior intervention for weight management: effectiveness on a population basis. *Prev Med.* 2008;46(3):238–46.
58. Samdal GB, Eide GE, Barth T, Williams G, Meland E. Effective behaviour change techniques for physical activity and healthy eating in overweight and obese adults; systematic review and meta-regression analyses. *Int J Behav Nutr Phys Act.* 2017;14(1):42.
59. Hunt C, George J. Preventing child obesity: a long-term evaluation of the HENRY approach. *Community Pract.* 2013;86(7):23.
60. Willis T, George J, Hunt C, Roberts K, Evans C, Brown R, et al. Combating child obesity: impact of HENRY on parenting and family lifestyle. *Pediatr Obes.* 2014;9(5):339–50.
61. Nelson A, Normanville CD, Payne K, Kelly MP. Making every contact count: an evaluation. *Public Health.* 2013;127(7):653–60.
62. Beeken R, Leurent B, Vickerstaff V, Wilson R, Croker H, Morris S, et al. A brief intervention for weight control based on habit-formation theory delivered through primary care: results from a randomised controlled trial. *Int J Obes.* 2017;41(2):246.
63. Wright K, Giger JN, Norris K, Suro Z. Impact of a nurse-directed, coordinated school health program to enhance physical activity behaviors and reduce body mass index among minority children: a parallel-group, randomized control trial. *Int J Nurs Stud.* 2013;50(6):727–37.
64. Nolan C, Deehan A, Wylie A, Jones R. Practice nurses and obesity: professional and practice-based factors affecting role adequacy and role legitimacy. *Primary Health Care Res Dev.* 2012;13(4):353–63.
65. Epstein L, Ogden J. A qualitative study of GPs' views of treating obesity. *Br J Gen Pract.* 2005;55(519):750–4.
66. Ogden J, Flanagan Z. Beliefs about the causes and solutions to obesity: a comparison of GPs and lay people. *Patient Educ Couns.* 2008;71(1):72–8.
67. Ogden J, Bandara I, Cohen H, Farmer D, Hardie J, Minas H, et al. General practitioners' and patients' models of obesity: whose problem is it? *Patient Educ Couns.* 2001;44(3):227–33.
68. Phillips K, Wood F, Kinnersley P. Tackling obesity: the challenge of obesity management for practice nurses in primary care. *Fam Pract.* 2013;31(1):51–9.
69. Alberga A, Pickering B, Alix Hayden K, Ball G, Edwards A, Jelinski S, et al. Weight bias reduction in health professionals: a systematic review. *Clin Obes.* 2016;6(3):175–88.
70. Henderson E. Obesity in primary care: a qualitative synthesis of patient and practitioner perspectives on roles and responsibilities. *Br J Gen Pract.* 2015;65(633):e240–7.
71. Starfield B, Wray C, Hess K, Gross R, Birk PS, D'Lugoff BC. The influence of patient–practitioner agreement on outcome of care. *Am J Public Health.* 1981;71(2):127–31.
72. Michie S. Talking to primary care patients about weight: a study of GPs and practice nurses in the UK. *Psychol Health Med.* 2007;12(5):521–5.
73. Hoppe R, Ogden J. Practice nurses' beliefs about obesity and weight related interventions in primary care. *Int J Obes.* 1997;21(2):141.
74. Tinati T, Lawrence W, Ntani G, Black C, Cradock S, Jarman M, et al. Implementation of new healthy conversation skills to support lifestyle changes—what helps and what hinders? Experiences of Sure Start Children's Centre staff. *Health Soc Care Community.* 2012;20(4):430–7.
75. Walker O, Strong M, Atchinson R, Saunders J, Abbott J. A qualitative study of primary care clinicians' views of treating childhood obesity. *BMC Fam Pract.* 2007;8(1):50.
76. Taylor A, Ogden J. Avoiding the term 'obesity': an experimental study of the impact of doctors' language on patients' beliefs. *Patient Educ Couns.* 2009;76(2):260–4.
77. Blane DN, Macdonald S, Morrison D, O'Donnell CA. The role of primary care in adult weight management: qualitative interviews with key stakeholders in weight management services. *BMC Health Serv Res.* 2017;17(1):764.
78. Nijland ML, Stam F, Seidell JC. Overweight in dogs, but not in cats, is related to overweight in their owners. *Public Health Nutr.* 2010;13(1):102–6.
79. White G, Hobson-West P, Cobb K, Craigon J, Hammond R, Millar K. Canine obesity: is there a difference between veterinarian and owner perception? *J Small Anim Pract.* 2011;52(12):622–6.



80. Churchill J. Increase the success of weight loss programs by creating an environment for change. *Compend Contin Educ Vet*. 2010;32(12):1–4.
81. Greene GW, Rossi SR, Rossi JS, Velicer WF, Fava JL, Prochaska JO. Dietary applications of the stages of change model. *J Am Diet Assoc*. 1999;99(6):673–8.
82. Johnson PJ, Wiedmeyer CE, LaCarrubba A, Ganjam VS, Messer NT. Laminitis and the equine metabolic syndrome. *Vet Clin North Am*. 2010;26(2):239–55.
83. Lynden J, Ogden J, Hollands T. Contracting for care—the construction of the farrier role in supporting horse owners to prevent laminitis. *Equine Vet J*. 2018;50:658–66.
84. Bartges J, Kushner R, Michel K, Sallis R, Day M. One Health solutions to obesity in people and their pets. *J Comp Pathol*. 2017;156(4):326–33.
85. Kushner RF, Blatner DJ, Jewell DE, Rudloff K. The PPET study: people and pets exercising together. *Obesity*. 2006;14(10):1762–70.

**How to cite this article:** Lynden J, Hollands T, Ogden J. Animal obesity: What insights can a one health approach offer when it comes to veterinarians 'making every contact count'? *Vet Rec*. 2022;e1904. <https://doi.org/10.1002/vetr.1904>