

Barriers to Innovation: The Adoption of Physiotherapy as a Treatment in the UK Veterinary Sector

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Abstract

While physiotherapy is a popular treatment for humans it is less so when it comes to treating animals. Indeed, in the veterinary sector physiotherapy may be seen as an innovation and the reasons for it not being used more widely considered barriers to that innovation. The aim of this paper, therefore, is to identify those barriers and consider strategies for overcoming them. The research underpinning this paper made use of six depth interviews to develop a quantitative questionnaire which was then used as the basis of an online survey of veterinary surgeons using the surveymonkey research platform. The study identified factors such as “client cost concerns” and “awareness of available local services” as being barriers to referring patients while “an increase in the published evidence base” and “inclusion of physiotherapy as part of the curriculum at university” were seen as strategies that would help increase the use of physiotherapy in the veterinary sector.

Key words: Innovation, barriers to innovation, veterinary physiotherapy

1.0 Introduction

Physiotherapy is a healthcare profession that “helps restore movement and function when someone is affected by injury, illness or disability” (Chartered Society of Physiotherapy, 2015). According to McGowan and Stubbs (2007) physiotherapy has scientific foundations and “involves using a professional assessment and reasoning to select appropriate treatments for individual patients” which means that it is more than just the application of a treatment modality.

Physiotherapy has been routinely used in human medicine for over 100 years (McGowan and Stubbs, 2007; Veenman, 2006) where injury, disease or disability has impaired an individual’s ‘normal’ function (Calthorpe et al, 2014). Indeed, it is now recognized as a fundamental part of the human health care profession in countries across the world (McGowan and Stubbs, 2007) and in the UK, NHS General Practitioners have been regularly referring patients to physiotherapists for many years (Foster et al, 2012).

Despite the proven success of physiotherapy in human medicine it has not been adopted widely in the veterinary sector and McGowan and Stubbs (2007) believe that animal physiotherapy remains an emerging sub-discipline of physiotherapy. Doyle and Horgan (2006) note that it is only in the last few decades that the physiotherapeutic profession has begun to explore and realise the benefits that physiotherapy can bring to animal health.

It appears therefore, that in the veterinary sector physiotherapy represents an innovation and that its limited uptake can be at least partly explained in terms of barriers to innovation. This paper, therefore, presents the results of research that has been conducted with the aim of identifying these barriers and suggests strategies to overcome them. The paper will outline the methodology used to undertake the research, consider the barriers identified via the primary research, and finally discuss the strategies that might be employed to address the barriers. To begin, however, it is useful to consider the concept of barriers to innovation within the broader literature relating to innovation.

2.0 Innovation

Innovation is difficult to define (Tellis et al, 2009) because it is a complex concept (Roehrich, 2004; Trott, 2012) but in the current context it may be taken to be *the act of introducing something new, novel, or advanced with the intention of creating benefit* (developed from Hisrich and Kearney, 2014). It is distinct from *invention*, which is simply the process of converting thoughts into a tangible new artefact (Trott, 2012), and it may relate to a new product or service, a new strategy, an opening of a new market or even small changes that improve an organisations processes or productivity (Ettlie and Reza 1992, Schumpeter 1943). In respect of individuals, there is a well-recognised and well researched (Agarwal and Prasad, 1998) tendency for some people to more readily engage with innovation than others. This phenomenon is known as *Personal Innovativeness* which Rogers (1995, p252) defines as “*the degree to which an individual or other unit of adoption is relatively early in adopting new ideas*”.

Innovation is widely accepted as being essential for organisational evolution, growth, productivity, competitive advantage and profitability (Coad et al, 2015; Ereksion et al, 2008; Hisrich and Kearney, 2014; Priyadharshini et al, 2015; Schumpeter; 1943; Steenkamp et al, 1999; Tidd and Bessant, 2009; Trott, 2012). It is also apparent that for survival as well as sustained success then organisations must engage in innovation on an ongoing basis (Bessant and Tidd, 2015). According to Parkin et al (2014, p308) “*A firm that introduces a new and differentiated product faces a less elastic demand for its product, and so the firm is able to increase its price and make an economic profit*”. However, eventually other firms attracted by the profit will imitate the product and the profit will be competed away which means that if the original firm is to continue to generate profit and remain successful it must work to develop new differentiated products, that is, it must innovate.

A key concept in understanding the innovation process from the consumers perspective is the *adoption curve* developed by Rogers (1995) and reproduced here as Figure 1. In the first instance Rogers (1995) noted that *diffusion* of an innovation is a process by which the innovation is communicated through various channels such as the mass media (radio, television and newspapers), interpersonal channels (face to face personal contact) or interactive communication channels (the Internet), to its target audience over time (Greenhalgh et al, 2004, Rogers 2005). He subsequently noted that not all consumers adopted an innovation as soon as they were aware of it but that adoption occurred at different rates which he attributed to characteristics of the social system itself (Rogers 2005). Finally, he realised that the number of consumers adopting could be portrayed graphically and when it was it typically produced a bell-curve which he called the adoption curve. It was then just a short step to segment the curve in order to identify typical adopter types based on their response to innovation (Figure 2).

Figure 1 – The Adoption Curve

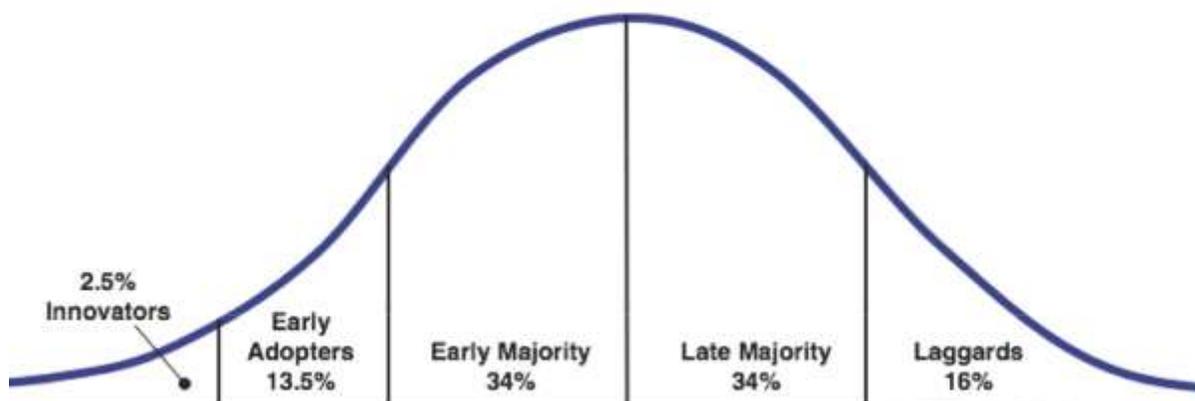


Figure 2 – Characteristics of Adopters

Adopters	Characteristics
Innovators	Innovators are willing to take risks, have the highest social status, have financial liquidity, are social and have closest contact to scientific sources and interaction with other innovators. Their risk tolerance allows them to adopt technologies that may ultimately fail. Financial resources help absorb these failures.
Early Adopters	These individuals have the highest degree of opinion leadership among the adopter categories. Early adopters have a higher social status, financial liquidity, advanced education and are more socially forward than late adopters. They are more discreet in adoption choices than innovators. They use judicious choice of adoption to help them maintain a central communication position.
Early Majority	They adopt an innovation after a varying degree of time that is significantly longer than the innovators and early adopters. Early Majority have above average social status, contact with early adopters and seldom hold positions of opinion leadership in a system.
Late Majority	They adopt an innovation after the average participant. These individuals approach an innovation with a high degree of scepticism and after the majority of society has adopted the innovation. Late Majority are typically sceptical about an innovation, have below average social status, little financial liquidity, in contact with others in late majority and early majority and little opinion leadership.
Laggards	They are the last to adopt an innovation. Unlike some of the previous categories, individuals in this category show little to no opinion leadership. These individuals typically have an aversion to change-agents. Laggards typically tend to be focused on "traditions", lowest social status, lowest financial liquidity, oldest among adopters, and in contact with only family and close friends.

Various economic, psychological and sociological variables as well as the characteristics' of an innovation will affect the adoption process and the rate of adoption (Rogers 1962, Butler and Sellbom, 2002). Where these factors inhibit the adoption of an innovation they are referred to as *barriers to innovation*. Tidd and Bessant (2009) suggest that barriers to innovation may be classified as being economic, behavioural, organisational, or structural but these generic labels are not particularly useful for the management of innovation and so many studies focus on the specific barriers to specific innovations. Such specific barriers range from knowledge deficits (Boz et al, 2011; Constance and Choi, 2010; Espinosa-Goded et al, 2013; Karsh et al, 2013; Liddell et al, 2011) and financial constraints (Coad et al, 2015; Deslauriers 2009; Karsh et al, 2013; Liddell et al, 2011; Pinget et al, 2015) through to risk perception, organisational culture and readiness (Antioco and Kleijnen, 2010; Johnson, 2010; Johnson, 2013; Liddell et al, 2011; Makowsky et al, 2013), market or adopter characteristics (Egbue and Long, 2012; Karsh et al, 2013; Makowsky et al, 2013; Pinget et al, 2015) and regulation (Engberg and Altmann, 2015; Sivertsson and Tell, 2015).

In the veterinary sector studies have identified a number of sector specific barriers including the ability to interpret data (Johnson 2013, King, 2004), ease of use (King, 2004), finances (Johnson, 2013; King, 2004; McNamara and Mackintosh, 1993; Zander et al, 2013), knowledge deficit (Doyle and Horgan, 2006; Johnson, 2013; McNamara and Mackintosh, 1993; Zander et al, 2013), limited applications (Johnson, 2013), time (Heayns and Baugh, 2011), lack of evidence based research (Doyle and Horgan, 2006; Heayns and Baugh, 2011; McNamara and Mackintosh, 1993), and poor liaison with paraprofessionals (Doyle and Horgan, 2006; McNamara and Mackintosh, 1993).

In the veterinary sector it is contended that veterinary physiotherapy may be seen as an innovation and that its limited application is to some extent the result of vets failing to refer due to the existence of various barriers to innovation. Research was, therefore, conducted to investigate the factors operating as barriers to the adoption of veterinary physiotherapy.

3.0 Methods

The primary research on which this paper is based comprised two distinct phases. Phase One was *qualitative* in nature and involved six face-to-face depth interviews with vets working in veterinary practices ranging from small private operations to large corporate organisations. The individuals were carefully selected to ensure that views were gathered from participants of varying ages, gender and level of qualification. An Interview Schedule was developed from the literature which required participants to provide their thoughts and opinions regarding physiotherapy. The interviews lasted 30-40 minutes and, with the permission of the participants, the data was captured by audio recording for transcription and interpretive analysis. A review of the data by the authors suggested that the findings had face validity (Denzin, 1978).

Phase two of the primary research was *quantitative* in nature being based on a survey of practising vets. A questionnaire was developed from a review of the literature and the output of Phase One. The questionnaire gathered information regarding the demographic and socioeconomic characteristics of the veterinarians; their current awareness, knowledge and usage levels of physiotherapy; and their perceptions of veterinary physiotherapy. The questionnaire was pilot-tested on six veterinary surgeons and the feedback was used to clarify the wording of some questions as well as improve the format of the questionnaire. The questionnaire was subsequently used as the basis of an online survey using the surveymonkey research platform with the link being distributed in the UK via a series of personalised emails, the veterinary press, a veterinary forum and social media such as Twitter and Facebook. Where appropriate, contacts received an electronic reminder one week after the survey was launched and the survey was closed after three weeks. Useable responses were received from a total of 128 participants which, according to West (1999), means that the results are statistically significant at the 90% level with +/- 7.5% accuracy. The data was subject to univariate and bivariate data analysis using IBM SPSS Statistics v22.

Of the 128 respondents 76 (59.4%) were female and 52 (40.6%) were male; the modal age range was 30-39. A large proportion of respondents were Assistant (employed) Veterinarians (45%), with others being Employer Owners (19.5%), Employer Partners (18.8%) or Locum Veterinarians (5.5%). The Others (10.9%) included Clinical Directors, Self Employed Referral Veterinarians, and Veterinarians Currently on Leave (eg maternity leave). The majority of the veterinary surgeons sampled specialised in Small Animal Practice (77.3%) with far fewer focusing on Equine Work (9.4%) and Large Animal Practice (3.9%). The remainder had a special interest in Exotics, were acting as directors, worked in academia or the pharmaceutical industry. The majority of respondents had qualified in the UK (82.8%). All veterinarians had undertaken Continued Professional Development (CPD) in the last twelve months and the most popular specialisms were medicine (91.4%) and surgery (78.10%).

4.0 Results

The majority of respondents (89.0%) were aware of qualified veterinary physiotherapists which is better than the 79.0% reported by Doyle and Horgan (2006) and significantly higher than the 37.0% reported by McNamara and Mackintosh (1993). However, some 33.1% of the respondents to the current survey (see Table 1) admitted to having poor knowledge and understanding of physiotherapy. The survey also found that 65.0% of respondents held the opinion that veterinary physiotherapy is either *quite* or *highly* effective, however, the frequency with which they referred varied considerably (see Table 2) and 32.0% had never referred a patient for veterinary physiotherapeutic treatment.

Table 1 - Level of knowledge and understanding of veterinary physiotherapy

	Frequency	Percent	Cumulative Percent
Poor understanding	42	33.1	33.1
Satisfactory understanding	46	36.2	69.3
Good understanding	26	20.5	89.8
Excellent Understanding	13	10.2	100.0
Total	127	100.0	100.0

Table 2 – Frequency of referral to veterinary physiotherapists

	Frequency	Percent	Cumulative Percent
Regularly	12	9.4	9.4
Often	8	6.3	15.7
Sometimes	22	17.2	32.9
Occasionally	45	35.2	68.1
Never	41	32.0	100.0
Total	128	100.0	

Data concerning the reasons or barriers that prevented or limited veterinary surgeons from referring patients to veterinary physiotherapists are presented in Figure 3. The reason most often cited by the respondents for not referring clients to a veterinary physiotherapist was Client Cost Concerns with 57.5% of respondents indicating this as a barrier. Some 36.2% of the respondents were unaware of available Local Services while 31.5% had a general Lack of Knowledge and Referral Related Risks were cited by 18.9%. Only 8.7% of respondents felt that Disbelief in Clinical Benefits were a barrier while 6.3% failed to refer for Client Related Concerns and some 7.9% simply Did Not Know.

While the survey served to both confirm the barriers preventing or limiting the use of veterinary physiotherapy in the UK and provide an indication of their magnitude it also provided insight into the actions that respondents would like to see in order to overcome these barriers (see Figure 4). The modal response (81.1%) was a belief that an increase in published evidence based medicine on veterinary physiotherapy and its application would help to improve adoption of physiotherapy in the UK. More than half (55.1%) of the respondents’ stated that the inclusion of physiotherapy taught as part of the curriculum at university would help to increase the use of physiotherapy in the veterinary sector. More than half of the respondents’ (52.8%) also believed that an increase in the promotion of local services was necessary to improve uptake of physiotherapy.

Figure 3 – Barriers to the Adoption of Physiotherapy

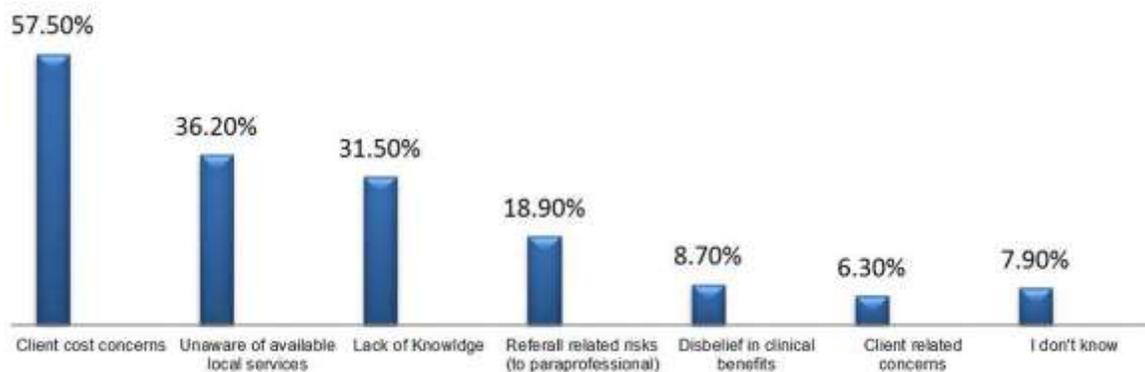
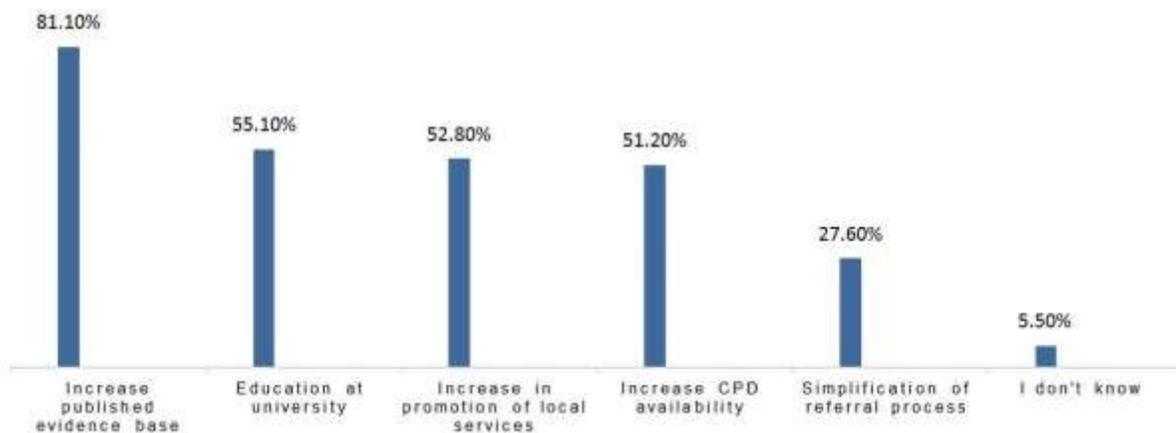


Figure 4 – Proposals to Overcome the Barriers to Adoption

5.0 Discussion

The data from the survey confirms that physiotherapy referral rates amongst veterinary surgeons are fairly low and that a number of factors constitute barriers to referral. However, the survey also gathered data relating to how the barriers limiting referral to veterinary physiotherapy might be addressed and it is now useful to consider each in turn.

5.1 Increase Published Evidence Base

According to Grindlay et al (2012) there are 121 “core” veterinary journals and some 1,139 journals that publish papers on veterinary medicine which suggests that there is a lot of research available on the subject of veterinary medicine. However, a search¹ of the CAB Abstracts database using the search term “*veterinary physiotherapy*” produced only 25 hits which implies that there is a paucity of research relating specifically to veterinary physiotherapy. It is not surprising, therefore, that 8.7% of the respondents report a lack of belief in the clinical benefits of physiotherapy while 81.1% support an increase in the evidence base as a means of increasing the referral rate for physiotherapy.

According to Ryan and Finn (2000) “...if animal physiotherapy is to grow and advance it is essential that those who practice it should publish studies on the efficacy of their treatment interventions” and so it would appear logical to recommend that more research into veterinary physiotherapy be undertaken and that more papers be published on the subject, however, before further work is undertaken it would seem advisable to consider the nature and focus of the research. If the increased research activity and subsequent publications are to have the desired impact it may well be best to conduct further research with veterinarians in order that specific research gaps be identified. For instance, such work might seek to determine the efficacy of physiotherapy in different species.

It is also apparent that while the respondents to this survey were asked specifically about publications, people generally are influenced by information reaching them from a variety of sources and a range of channels. It would seem logical, therefore, to use key opinion leaders and a range of communication channels (eg social media, trade shows, and exhibitions) as well as publications, in order to raise awareness and promote the efficacy and clinical benefits associated with physiotherapy in the veterinary sector.

5.2 Education at University

At the time of writing, there are seven veterinary schools in the UK with plans for new schools to open in the future (Royal College of Veterinary Surgeons, 2015a). However, veterinary physiotherapy is not within the core competence of veterinarians qualifying in the UK. The syllabus of the five-year degree under the auspices of the Royal College of Veterinary Surgeons (Royal College of Veterinary Surgeons, 2015b) does not include the principles and protocols of physiotherapy as a treatment option but some undergraduate courses may offer an elective module in this area.

¹ The search of the CAB Abstracts database was conducted on 1st May 2015.

The data indicated that 81.9% of respondents were not taught about physiotherapy at university. With this in mind and coupled with the finding that approximately a third (31.5%) of respondents felt that their lack of knowledge impeded physiotherapy adoption it is a little surprising to learn that only half (55.10%) of respondents felt that better education at university was required. It is unclear why this is the case. On the one hand the respondents may feel that physiotherapy was adequately covered as part of their university studies while on the other it could be explained by the continuous learning that veterinarians are engaged with via Continuous Professional Development (CPD) and that perhaps they feel they benefit more from teachings once they are qualified and working in practice rather than at university. It would appear, therefore, that this is another issue that would benefit from further investigation.

5.3 Increase in Promotion of Local Services Available

With more than a third (36.2%) of respondents reporting a lack of awareness concerning the availability of local physiotherapy services it is not unexpected that 52.8% wish to see an increase in the promotion of local services. What is not so clear without further research is whether this is because local physiotherapy services simply do not exist or whether they do exist but that veterinarians are not aware of their existence. If the former is the case then there would appear to be a gap in the market and an opportunity for new veterinary physiotherapy businesses to be set up while if it is the latter case then the onus would appear to be on the Veterinary Physiotherapists to better promote their services. This promotion may well involve general advertising but might also include some targeted personal introductions.

In human medicine the aetiology of the relationship between General Practitioners and human physiotherapists may provide an indication of how the relationship between veterinary surgeons and veterinary physiotherapist might develop. However, there would appear to be some way to go before the latter can become *clinically collaborative colleagues* because the survey produced some evidence to suggest that veterinarians feel strongly that paraprofessionals operating in fields such as physiotherapy require better regulation and standardisation in order for veterinarians to have the confidence that practitioners' are qualified to an acceptable standard.

5.4 Increase CPD Availability

The Royal College of Veterinary Surgeons Code of Professional Conduct for Veterinary Surgeons (Royal College of Veterinary Surgeons, 2015c) insists that veterinary surgeons have a responsibility to ensure that they maintain and develop the knowledge and skills relevant to their professional practice and competence. The recommended minimum CPD is 105 hours over a rolling three year period with an average of 35 hours per year but it is generally accepted that most veterinary surgeons will do considerably more than this (Royal College of Veterinary Surgeons, 2015d). It is clear to see from the results in this study that both a lack of knowledge about physiotherapy and when to refer cases for treatment, and uncertainty surrounding the clinical benefits of physiotherapy are factors hindering physiotherapy adoption. Perhaps increasing the availability of veterinary physiotherapy CPD would play a key role in influencing the adoption of physiotherapy.

5.5 Simplification of the Referral Process

It has been well documented that innovations that can be adopted with relative ease are more likely to gain widespread adoption (Rogers, 2005) and it is not surprising that 27.6% of the respondents suggest that simplifying the referral process from veterinary surgeon to physiotherapist will help facilitate the adoption of veterinary physiotherapy. This simplification could be achieved in any number of ways but two of the most straightforward would seem to be standardising the referral process and adopting an electronic referral system which would have the advantage of being timely as well as eliminating paperwork.

6.0 Conclusions

As with all research projects this study did have inherent limitations. A first limitation was that the issue of physiotherapy referral was considered from the perspective of the veterinary surgeon alone. The other key stakeholder, of course, is the client, and as a consequence of their omission from the study their views on matters such as cost and support for veterinary physiotherapy, could only be incorporated indirectly via the veterinary surgeon. This would suggest the need for additional research to establish the views and perceptions of the client regarding veterinary physiotherapy. A second limitation of the study relates to the sample size of 128 which is not particularly large. However, while a larger sample would have produced results with greater statistical significance the actual statistical significance associated with this sample size is sufficiently robust to produce reliable data and permit meaningful discussion.

Despite the inherent limitations this study provides valuable insights into physiotherapy as an innovation in the veterinary sector and the barriers that are preventing widespread referral to physiotherapists. Overall, veterinary surgeons awareness of physiotherapy and its clinical benefits is fairly high but usage remains relatively low. While 89.0% of the participants were aware of qualified veterinary physiotherapists only 68.0% had referred a patient for veterinary physiotherapeutic treatment and only 9.4% of respondents did so regularly. Client cost concerns, awareness of available local services, and lack of knowledge are all important factors identified as barriers to more widespread referral of physiotherapy amongst veterinarians in the UK. An increase in published evidence based research regarding veterinary physiotherapy and the inclusion of physiotherapy in the curriculum at university were the two most popular suggestions for overcoming these barriers.

Finally, it would appear that further research is required in order to identify the specific knowledge gaps to be researched in order to generate additional publications dealing with veterinary physiotherapy, determine whether there should be more veterinary physiotherapy in the university curriculum or whether it needs to be taught better, establish whether lack of awareness regarding local physiotherapy services is a result of a shortage of skilled practitioners, and explore the clients' perception of veterinary physiotherapy.

Acknowledgements

The authors are grateful to Alison Pyatt of Harper Adams University, for helpful comments and advice provided during the preparation of this paper.

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