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Exploring the Horse-Human Relationship

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Abstract

From a vital role in agriculture, food production and transportation, equids are now used primarily for sporting and leisure ventures, and often as much-loved companions. However, changing human demands have not only shaped the horse into the modern day animal we see today, but altered the way in which humans interact with equids on both a personal and professional level.

Scientific research around human-animal relationships and bonds has increased exponentially, but there remains a paucity of research on the relationship between horse and human.

The aim of this project is to explore that relationship. With no comprehensive reviews consolidating the current state of evidence, a scoping review was performed first. Twenty-three publications met final inclusion criteria, found to be diverse, heterogeneous and lacking a robust evidence-base. Due to the heterogeneity of the studies, very limited comparisons of aims, objectives and methodologies could be drawn. Nonetheless, several different areas of research were identified; equine training methodologies and behaviour, horses within sport and leisure, and equine behaviour and reactions towards humans. Significant gaps within the evidence were documented, including how the relationship between horse and owner affects decisions made throughout the horse's life.

A mixed methods approach using in-depth interviews and cross-sectional questionnaires was used to explore this area of the horse-human relationship. Owners with previous experience of both purchasing a horse and making euthanasia decisions, were recruited through an online questionnaire exploring characteristics of people involved with the care of horses. Owner typing was performed based on responses to statements exploring the

relationship participants had with their horses. This identified potential interviewees with a range of experiences and relationships with their horses. In-depth interviews allowed for further exploration of these personal attachments for eleven participants, and a deeper understanding of the motivations and experiences owners have surrounding purchasing and euthanasia decisions for horses. The importance of the horse as a pet (85% of participants strongly agree or agree) and family member (92.9% of participants strongly agree or agree), irrespective of owner experience and requirements, was highlighted in both online survey respondents and interview candidates. Expectations and obligations, as well as the conflict between them were key emerging themes for the purchasing decisions made by interview participants. Furthermore, the practical, obligational, and personal aspects of euthanasia decision-making, and the need for support was analogous across the interview owner groups. The emotional impact euthanasia had on the owners and their responsibility grief, highlights the extent to which an important decision such as euthanasia has on an owner, particularly for those with less experience. The data highlighted the need to support owners when making such decisions, taking into account their strong attachments which may impact their judgement when a decision needs to be made. Themes and ideas identified from these interviews were tested within a larger population of horse owners through a cross-sectional survey of owners with experience of purchase and euthanasia.

Results from 495 survey respondents identified high confidence, with the majority of owners (47.0%) ranking themselves a 10 with regards to their confidence in providing daily care to their own, and other people's horses. The majority of participants were very confident when making several decisions surrounding the purchase of their most recent horse; 58.9% very confident in

deciding what horse to view and 52.3% very confident trying the horse and deciding if it was suitable. One in four less experienced participants did not seek any advice on the suitability of the horse, and the majority of participants sought no advice on the type of horse to view (39.2%) and its cost (49.9%). The most important requirements when purchasing a horse were: temperament when ridden (67.8%) and handled (70.5%), and conformation (43.2%). The most frequent consideration when purchasing a horse was the ability of the horse to carry out its desired function (76.9%). There were 409 participants with experience of euthanasia, and the majority of the participants' described this as humane destruction (59.2%). The horse's quality of life at the time of euthanasia (95.8%) or in the future (88.6%) were very important factors for participants during the euthanasia decision. Advice was sought from the vet by most participants (94.7%), highlighting the importance of shared decision making between the client and vet. Participants most frequently 'agreed' or 'strongly agreed' that they would make the same decision again (98.1%), and were confident it was the right decision for the horse (95.6%). This suggests that participants did not regret the decision they made for their horses, but with a high percentage described as 'humane destructions', this raises the question of whether these decisions were made too late.

This research has identified key factors of the horse-human relationship that were important in decision-making around purchase and euthanasia.

Recommendations for future work include the validation of owner-typing and horse suitability tools for purchase, and the development of resources and support networks to draw on when considering euthanasia.

Chapter 1: Review of the literature surrounding the horse-human relationship.

1.1 Background

From its first domestication over 6,000 years ago, the horse - *Equus ferus caballus* - has evolved from an important working animal into a much-loved and reliable companion (Endenburg *et al.*, 1999). The evolution of their use has in turn influenced not only the way we interact with horses today, but also the relationships that are formed between horses and humans (Hausberger *et al.*, 2008). Consequently, it's important to gain an understanding of horse-human relationships in today's environment, and how these relationships may influence decisions made during various important events within a horse's life.

Research investigating human relationships and bonds has been conducted for many years. The work of Bowlby and Ainsworth on attachment theory has influenced research carried out on human relationships both with other humans, and animals (Beck and Madresh, 2008). Within this study we will explore the research surrounding the evolution of the human-animal bond and how that research has informed what we know about the horse-human relationship. A scoping review of the literature surrounding this relationship will be performed to gain an understanding of the extent, and depth, of this research. This will provide an understanding of the subject area and how we can use the available literature to investigate the effect the horse-human relationship may have on decisions made by owners for the horses in their care.

1.2 Human Animal Bond

The human animal bond (HAB) has been described as 'a mutually beneficial and dynamic relationship between people and animals' (American Veterinary Medical Association, 2018). The concept of the bond was first presented in the 1970s where presentations and conferences started the development of this important field. (Hines, 2003). The human-animal bond has become increasingly popular in medical research exploring the benefits on the health and well-being of people. However, there have been mixed results (Herzog, 2011). Some studies found the HAB to have both physical (Friedmann *et al.*, 1980, McGreevy *et al.*, 2005, Lane *et al.*, 2016), and psychological benefits (Barker and Dawson, 1998, Wells, 2004, El-Alayli *et al.*, 2006, Bass *et al.*, 2009, Hoffmann *et al.*, 2009). Conversely, other studies have found there to be zero, or negative benefits on health (Gilbey *et al.*, 2007, Miltiades and Shearer, 2011, Parker *et al.*, 2010). Herzog (2011) argued that design problems, interpretation and invested interest are all factors influencing the inconsistency of these results. Further research using larger sample sizes would therefore be valuable.

Measurement methods for the HAB vary greatly and there have been many tools developed to investigate the bond and its impact. However, reliable, and valid measurements are lacking (Dwyer *et al.*, 2006). In an extensive review carried out by Wilson and Netting (2012), 140 tools were identified via a systematic search based on the methods used by Anderson (2007) in his compendium of measures of the human-animal bond. A matrix was produced for the 140 tools indicating measurement area, structure and properties, where it was originally published and any studies in which it had been subsequently used. This provides a useful resource for identification of the large number of measures that are available. However, repetition becomes an issue, as many

studies address similar populations and constructs (Wilson and Netting, 2012), with a consequent lack of reliability and validity for many tools. Many of these studies used convenience sampling techniques to validate their measurement tool. Very few actually used representative samples and so many of the tools lack generalisability. The majority of the measurement tools are also designed for companion animal owners and are particularly canine specific. Further research using these tools with other companion animal owners including horse owners would be beneficial. It's understood that no single tool will be ideal for all species, but a broader range of tools for use in different species would be desirable.

The Keirsey Four Types Sorter (KFTS) (Keirsey and Bates, 1984) has been used in various studies to explore the relationship between human personality types and the bond with their pets. The KFTS has evolved from the Myers Briggs Type Indicator and includes much of the same information but is more concise, straightforward and has been deemed to lend itself to specific predictions regarding the relationship between the human personality types and pet attachment (Bagley and Gonsman, 2005). Keirsey and Bates (1984) describe the tool as an assessment of innate tendencies, preferences and motivations, producing personality view from specific dimensions. Bagley and Gonsman (2005) found that contrary to past research, guardians had the greatest attachment to their animals and not idealists. From the four temperament descriptions by Keirsey and Bates 1979; Guardians make up 40-50% of the population. They are 'security seeking', logistical, reliable, respectable and group orientated. Idealists are only 8-10% of the population, they are 'identity seeking', trusting of their intuitions and feelings, ethical, benevolent and empathetic. It's from these personality traits that it's expected that 'Idealists' have the highest level of attachment to their pets. The KFTS is

a very broad personality measurement tool and perhaps is an influencing factor for Guardian's showing unusually high attachments in Bagley's study (2005). The use of a personality test with an increased number of types may be required for further research in this area.

Another frequently used measure is the Lexington Attachment to Pets Scale (LAPS) (Johnson *et al.*, 1992). This measures the level of attachment of humans to their pets via a 23 item scale identifying three factors: general attachment, people substitution and animal welfare. The scale includes items from the Pet Attitude Scale, CABS and Pet Attitude Inventory. However, the scale does not acknowledge the attachment between the pet and the owner. Similarly the Pet Attitude Scale (PAS) (Templer *et al.*, 1981) which is the oldest and most modified of the HAB measurement scales, measures the attachment of owner to their pet and not the dyadic relationship between the pet and the owner. The most recent modification is the Pet Attitude Scale-Modified (Munsell *et al.*, 2004) in which changes were made to four original questions from the PAS designed by Templer *et al.* (1981). Further validation was conducted by Morovati *et al.* (2008) and the PAS's high internal consistency reliability was maintained. However another limitation for this measure is the canine specific nature of some questions, making them difficult to answer for other species.

The lack of development of species-specific measures that explore the dyadic relationship between owner and pet was identified by Dwyer *et al.* (2006) leading to the development of The Monash Dog Owner Relationship scale (MDORS). The scale contains 28 items that assess the Dog-Owner interaction, perceived emotional closeness and costs, and was developed due to a lack of psychometrically-sound, multi-dimensional questionnaires examining the human-companion dog relationship.

More recently the Dog Attachment Questionnaire (DAQ) and the Coleman Dog Attitude Scale (C-DAS) measurement tools have also been developed. The DAQ (Archer and Ireland, 2011) is a 35 item questionnaire developed from the theoretical treatment of human attachment, and modified for pet dogs. Unlike other pet attachment tools, the DAQ has used the principles of human attachment, but still requires further reliability testing on a larger, more representative sample population. The C-DAS (Coleman *et al.*, 2016) was developed as a psychometrically sound measure to assess attitudes towards dogs on an individual basis. The 24 item scale was developed using the tripartite model of attitude structure and unlike MDORS does not only explore the relationship with the dog, but also interactions, bonds and attachments. Limitations for this scale, like many of the developed scales and tools, is the use of convenience sampling rather than a sample that is representative of the population itself. Further analysis and validity testing is required using an appropriate population. This would be beneficial for the future success of the scale and its use in both research and clinical practice.

Although many of these measures or tools target various aspects of the human-animal bond they are similar in many ways. The majority lack species specificity, with the assumption that the relationship with cats and dogs will be similar. The need for species-specific measures has been identified and many have now been developed to measure the attachment between humans and companion dogs specifically. There remains, however, a distinct lack of research looking at the use of the available tools with horses and other equids. Human animal bond and attachment are terms often used synonymously, with attachment theory influencing a lot of the research involved within the HAB.

1.3 Attachment theory

Attachment behaviour has been defined as “seeking and maintaining proximity to another individual” (Bowlby, 1969). Although some initially argued against the broader use of attachment bonds with non-human species (Collis and McNicholas, 1998). The attachment theory outlined by Bowlby and Ainsworth has frequently been used to explore the human-animal relationship particularly with companion animals (Sable, 1995, Beck and Madresh, 2008, Archer and Ireland, 2011, Beetz *et al.*, 2012, Payne *et al.*, 2016b). Ainsworth (1969) categorized attachment figures into four key functions: the motivation of nearness and accessibility to the figure ‘Proximity Maintenance’, providing comfort and support when the environment is threatening ‘Safe Haven’, a dependable source of support and comfort allowing the exploration of the environment ‘Secure Base’, and finally the feeling of distress when the figure is absent ‘Separation Distress’.

Research has shown how animals can fulfil each of the functions giving credibility to the formations of attachment bonds with both other humans and animals. ‘Secure Base’ has been demonstrated in various studies (Horn *et al.* (2013), Archer and Ireland (2011)), where the dog was used as a source of comfort and well-being. ‘Safe Haven’ has been shown by Kurdek (2009) as participants were more inclined to seek support from their pet than their family members and friends when experiencing emotional distress. Similarly it has been indicated that the grief experienced with the loss of a human is similar to that of the death of a pet (Field *et al.*, 2009) demonstrating ‘Separation Distress’.

Research has also been performed to highlight the development of human attachment bonds by animals. An extensive review presented by Payne *et al.*

(2016b) explored the existence of attachment bonds directed at humans in both the dog-human and horse-human dyads. There was found to be strong evidence for dog-human attachments but very little for horse-human attachments. This lack of evidence may be due to lack of horse-human bonds themselves, or to the absence of robust research in that area. Additional research is required to truly gain an understanding of the phenomenon.

1.4 Horse Human bond

Although horses are frequently described as companion animals, their relationship with humans is different (Mills and Mc Nicholas, 2005). Horses tend to not be kept for the entirety of their life and are often sold when they no longer meet requirements. The role of the horse has evolved considerably since their initial use as a meat source and as a working animal (Levine, 1999). A recent survey carried out by The British Equestrian Trade Association (2015) found that there are around 944,000 horses, and 446,000 horse-owning households in Britain. Ninety-six percent of horse owners ride for pleasure and 53% of these have horses whose main role is for leisure riding and hacking. These findings are similar to that of Hotchkiss et al. (2007) where 56.7% of horses were used for pleasure riding, and also the National Equine Health Survey 2017 (Slater, 2016) where it was found that the most frequent activity was leisure riding and hacking (38.2%). This highlights the change in the function of the horse and its progression from a utility-based role important in agriculture, military and production, to a companion-based role important in sport and leisure (Dashper, 2014).

The divergence from its earliest use is also analogous to the variety of human interactions now involved with horses; riders, breeders, caretakers, farriers, veterinarians and therapists etc. spanning from short-term interactions with the

veterinarian to the long-term bond formed between owner and horse (Hausberger *et al.*, 2008). This evolution from the primary use of the horse could be paralleled to the transformation of the horse-human relationship and its increasing importance to welfare of the horse.

A review carried out by Hausberger *et al.* (2008) explored the various areas of the horse-human relationship which included tools to assess the horses' relation to humans, exploration of the bond between a foal and a human and matching of the horse and rider. This is only a single review and there are no comprehensive peer-reviewed studies of the topic. Performing a scoping review to understand the current research available on the horse-human relationship may be beneficial prior to performing a complete systematic review of the subject. This would enable us to understand areas within the horse-human relationship that have previously been explored, before investigating them further.

Recent studies of the current equine population within the UK found that 91.7% of owners were the main person responsible for the daily care of the horse (Ireland *et al.*, 2011b) and for 88% of the population the main responsibility for the horse lay with members of the family (BETA 2015). This demonstrates the responsibility and duty of care the owner or carer has for those horses in their care (Hemsworth *et al.*, 2015). The welfare of the horse is therefore highly dependent on the manner in which their owner manages and cares for them (Hotchkiss *et al.*, 2007). Hemsworth and Coleman (2010) had found that there were a number of factors influencing the way in which a person may manage their horse which included their knowledge, ability, environment, motivations, satisfactions and social influences.

Research into current management practices of the equine population within the UK found that 94% of horses are kept at livery or private yards (Slater, 2016). With 91.7% of horse owners being the main person responsible for

their daily care (Ireland *et al.*, 2011b) the responsibility of making health and welfare decisions is theirs.

1.5 Decision-making

Decision-making can be described as a process of selecting a favoured option or sequence of actions from given strategies or criteria (Wang and Ruhe, 2007). Copious research exploring descriptive and normative theories (how people make decisions and how decisions should be made, respectively) has been undertaken by researchers from a multitude of disciplines (Edwards and Fasolo, 2001). Underpinning normative theories include the Bayesian theory (Berger, 1985) and the expected utility paradigm (Osborne and Rubinstein, 1994). Cognitive capabilities of people making decisions varies greatly, however the core cognitive process of the human brain during these decisions shares similar characteristics and mechanisms (Wang, 2003, Wang and Gafurov, 2003).

Decision-making cognitive processes have been explored extensively within human medicine (Elstein and Schwarz, 2002, Patel *et al.*, 2002, Kushniruk, 2001). However within veterinary medicine there has been little published literature on the process (McKenzie, 2014). McKenzie (2014) performed a review on veterinary decision-making and describes the use of the dual process theory - a model comprising two complementary systems. System 1 is the rapid, unconscious process of gathering and evaluating information and using it to make judgements. System 2 is the deliberate, explicit evaluation of information and thus generation of a decision. McKenzie (2014) argues the predominance of system 1 in veterinary decision-making. This was drawn from results of a study identifying that a rapid initial decision (Vandeweerd *et al.*, 2012b) is the first of five steps involved in veterinarian decision-making, and

another study identifying spot diagnosis and pattern recognition being used to make rapid decisions for a case (Everitt, 2011). System 1 - although quick and efficient - relies heavily on cognitive bias allowing for a greater risk of error.

One way proposed to overcome cognitive bias is the use of Evidence-based Medicine (EBM) (McKenzie, 2014).

Evidence-based Medicine is the use of current, scientific research to make informed decisions about the care of individual patients (Sackett *et al.*, 1996).

Shaw (2001) states the importance of society witnessing diagnostic and therapeutic decisions made by veterinarians, who are in turn informed by high quality information sourced through scientific evaluation, for the growth, stature and economic sustainability of the veterinary profession. However several limitations have been identified, including the limited number of high quality clinical trials (Arlt *et al.*, 2010), accessibility of scientific databases (Vandeweerd *et al.*, 2012a), the clinician's ability to identify strengths and limitations of studies (Mair and Cohen, 2003) and the application of EBVM tools to busy, daily practice (Vandeweerd *et al.*, 2012b). Decision-making in veterinary medicine, however, rarely involves one party and many of the decisions made require the consent from the owner or guardian of the patient.

1.6 Consent

Veterinary informed consent can be described as “the owner’s formal agreement to the medical or surgical course of action proposed, based on the principle that owners or authorised agents are given adequate information to be able to make the right decision for their animal(s).” For consent to be legally, ethically and professionally valid it must always be informed (Laurie and Porter, 2016). It can therefore be considered in two parts – firstly informing the owner, and secondly documenting the information

communication process via a signed consent form (Childers *et al.*, 2009).

Giving consent for surgery or euthanasia is a difficult decision to make by the owner and so shared decision-making with the owner and veterinarian is an important and advantageous practice.

Decision-making in the veterinary profession can be both similar and different to that of human medicine. Discussion of the ethical topics of paternalism, autonomy, shared decision-making and informed consent have been debated in human medicine for years (Christiansen *et al.*, 2015). Paternalism can be understood as a 'relationship in which the veterinarian sets the agenda for the appointment, the veterinarian assumes that the client's values are the same as the veterinarian's, and the veterinarian takes on the role of a guardian.'

Shaw (2013). Historically the role of a guardian has been adopted by both physicians and veterinarians (Cornell and Kopcha, 2007). Although the theory is that the client will do what the veterinarian deems best for the patient, responsibility for treatment outcomes is no longer shared between client and veterinarian. Consequently, the veterinarian has the possibility of being held accountable by the client for unsatisfactory treatment outcomes.

Conversely, autonomous decisions emphasise the right for patients or in the veterinary context the client, to make their own decisions. Autonomous decisions and informed consent are considered to be closely linked, as truly autonomous decisions require the client's comprehension of the situation in order for their decision not to be influenced or manipulated (Christiansen *et al.*, 2015). Shared decision-making (SDM) is deemed an important and preferred decision-making method in human medicine with a recent systematic review of patient decision-making preferences finding the majority of patients (63%) prefer to be actively involved in the decision-making process (Chewning *et al.*, 2012).

SDM is considered by many to be the ideal choice for both veterinarian and client (Cornell and Kopcha, 2007). It has been depicted as a process where both patient and physician are involved in the sharing of information, discussion of preferences and finalising an agreed treatment plan (Charles *et al.*, 1997). However in both human and veterinary medicine there are challenges surrounding shared decision-making and autonomy.

Within veterinary medicine, although three parties are involved, it's considered that the animal patient is not able to participate in the decision-making process. As the animal patient is the property of the client, the decision for that animal is therefore the responsibility of the owner. This is similar to decision-making by proxy in human medicine and similar issues discussed in human medicine can then be reflected in the veterinary medicine field (Christiansen *et al.*, 2015). The veterinarian however, does have the responsibility to the welfare of that animal and when that is compromised, the client's autonomy to make decisions may have to be challenged. The use of tools to aid in the decision-making process for both clinician and patient, has been used in both human and veterinary medicine, often measuring quality of life (Yeates and Main, 2009).

1.7 Quality of life

Quality of life (QOL) and well-being are often used synonymously with Clark and colleagues (1997) defining both terms as “an animal's internal somatic and mental state that is affected by what it knows (cognition) or perceives, its feelings (affect) and motivational state, and the responses to internal and external stimuli or environments”. However there is currently no universally-accepted definition for quality of life within veterinary medicine (Wojciechowska and Hewson, 2005, Hewson *et al.*, 2007). From analysis of literature of the human QOL and animal welfare, Yeates and Main (2009)

suggest two main methods of QOL assessment for animals; mental state (feelings and emotions of the animal) and external parameters (externally observed inputs and outcomes).

The majority of generic QOL assessment tools have been developed for dogs rather than other companion animals, including horses. Mullan and Main (2007) developed the QOL screening tool to raise awareness of the factors influencing QOL and therefore improve the QOL of dogs visiting veterinary practices. The tool is comprised of four sections: information about the dog (history, signalment, personality description), resources provided to the dog, behaviour and health output assessment by the owner and a brief pain assessment tool based on that developed by Wiseman-Orr *et al.* (2004).

On behalf of the farm and equine industry, the Farm Animal Welfare Council (FAWC) recommends both subjective and objective measures for QOL through welfare indicators like BCS, behaviour/ demeanour and presence of disease or injury (Farm Animal Welfare Council, 2009). For equine patients, Parker and Yeates (2012) suggest a six step QOL assessment process that can be used to assess their QOL. The six steps are:

- (1) Deciding which aspects of the horse's life affects its QOL
- (2) Identifying what information can be useful to assess these aspects
- (3) Developing an appropriate assessment method
- (4) Inferring the patient's expected QOL
- (5) Making a decision about actions or recommendations
- (6) Achieving that decision.

This tool was designed for use by the equine clinician to assess and increase the QOL of their patient.

Another equine QOL tool was designed by Villalobos (2011) and consists of a scale designed for the use by vets, nurses, animal technicians and owners for QOL in non-emergency conditions. This uses a ten point scoring system for

hurt, hunger, hydration, hygiene, happiness, mobility, more good days than bad, and a total score of more than 35 equates to an acceptable quality of life. However these tools, and like many other QOL analysis scores, are highly influenced by observer bias (Loftus, 2013) as an owner's perception of their pets QOL is likely to be influenced by some degree of anthropomorphism and anthropocentrism (McGowan and Ireland, 2016). Hence the importance of using both objective and subjective measures highlighted by the FAWC (Farm Animal Welfare Council, 2009).

QOL assessment is often used to aid animal euthanasia decisions. Stull (2013) suggests the use of the MEDW criteria; normal movement (M), eating (E), drinking (D) and body weight (W), to establish the 'humane endpoint' for a horse. Suggested end point criteria included; constant difficulty of the horse carrying out simple movements (M), a decreased desire to eat or reduced dental function (E), failure to drink adequate volumes (D) and a deterioration of condition resulting in decrease in body weight of 20% or more (W).

Euthanasia is often a difficult and distressing decision for horse owners (Stull, 2013). Grief is often experienced over the loss of an animal, and may even be similar or greater than that experienced at the loss of a human (Planchon *et al.*, 2002). Research has shown that the amount of grief an owner may feel is related to the procedure and how informed the owner is on the procedures involved in the euthanasia of a horse (Endenburg *et al.*, 1999). Unlike smaller companion animals, there are two accepted euthanasia methods that the owner can choose between: barbiturate overdose (lethal injection), or using a gunshot (BEVA), and the experience is often described as violent and unpleasant (Buelke, 1990).

Factors influencing the decisions for euthanasia, and the experiences of horse owners will be further explored throughout this research, along with other decisions that are made throughout horse ownership. As a first step, it's

beneficial to gain an understanding of any existing research investigating the horse-human relationship, to identify areas that have already been explored, and additional areas that may benefit from further research in the future.

1.8 Scoping review of the current literature exploring the horse-human relationship.

1.8.1 Background:

The relationships we, as humans, have with horses has developed in congruence with their role and use as an animal in the developed world. Scientific research around human-animal relationships and bonds has increased significantly in recent years (Hosey and Melfi, 2014). However it's unknown to what the extent this research has involved the relationship between horse and human, as there are currently no comprehensive reviews consolidating the current state of evidence. Investigation into what research has been conducted around the horse-human relationship, and identification of any research areas would be beneficial to gain an understanding of what is currently known and what further research may be needed in the field.

A scoping review was deemed by the researcher the most beneficial way to investigate and present the available research on the horse-human relationship. A scoping review is similar to a systematic review and follows many of the methodological steps. The review type provides a preliminary evaluation of the size and scope of available literature in order to gauge the nature and extent of research evidence (Grant and Booth, 2009). Arksey and O'Malley (2005) described the motivations as to why a scoping review may be performed which included; to investigate the range, extent and type of research activity, to determine the value of performing a full systematic review, to summarise and distribute findings or to identify gaps in the existing literature. The aim of the scoping review in the case of this study was to investigate and categorise the current published literature regarding the horse-human relationship. Findings from the review would then be used to consider

the validity of performing future systematic reviews on the horse-human relationship and identify the specific research areas that have a body of evidence suitable for a systematic review.

1.8.2 Materials and Methods:

Using the methodological framework presented by Arksey and O'Malley (2005), a scoping review was performed to investigate the current available literature on the horse-human relationship. A literature search was performed using CAB Abstracts (1910-present) and Medline (1946 – present), which have been reported as the two key databases for veterinary literature (Grindlay *et al.*, 2012). The following search terms were used; Human OR Person OR People OR Individual AND horse OR equine OR equid OR equus OR equi AND relationship OR bond OR interaction. All references were downloaded and managed in Endnote reference manager (Endnote X8.0.1).

Any duplicate papers were removed and the titles were reviewed by the researcher. Publications were included if the titles included terms relating to the horse-human relationship and the search terms associated. Any titles that the researcher was unsure of were kept for the abstract review. Abstracts for the publications were reviewed with the inclusion factors of any association with the horse-human relationship and the search terms used. Any studies identified during the abstract review that did not have the full text available were excluded. The studies available as full text were then reviewed fully using inclusion and exclusion criteria summarised below (Table 1). Definitions for some of the exclusion study groups are defined below (Table 2). The literature available as full text was then reviewed by another researcher and the final inclusion studies were agreed. Further analysis of the 23 papers was performed to generate data extraction tables for key features of each of the publications; characteristics of the study, methods and population. These extraction tables are presented in the results section.

Analysis of the study characteristics for each of the final 23 publications involved the extraction of information regarding the author, date, location and the methodology or study design. Data extraction of information regarding the characteristics of the methods used by each of the publications included; study aims, measures and important outcomes. Characteristics of the study populations were identified on analysis of the papers, which included identification of the study participants, the population size and the perspective of the study. The perspective of the study was established by identifying the study population and objectives.

Table 1: Inclusion and exclusion criteria used to perform a scoping review of current publications exploring the horse-human relationship.

Inclusion	Exclusion
Full text available	Non English publications
Original research	Single cases/ essays
Qualitative or observational studies with methodology capturing a two-way relationship between horse and human	Reviews
	3 rd party therapy studies
	Working equids
	Equids for agricultural use
	Experimental/ quasi-experimental studies

Table 2: Definitions of exclusion criteria used for a scoping review on the literature exploring the horse-human relationship.

Sub category	Definition
Studies of animal-assisted therapy	For purposes of this study, categorized as a study or person or people having intermittent access to an animal with the aim of improving specific physical, mental or social functioning
Studies of equids in developing countries	Any countries listed by the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD) eligible for Official Development Assistance, 2017 data (ODA list).
Studies of equids for agricultural use	For purposes of this study, categorized as equids that provide support to farmers in developing countries for example carrying feed and water for livestock and connecting farmers to cooperatives and markets (Brooke 2015).
Experimental and quasi-experimental studies	Experimental studies compare different treatments, where researcher controls treatments using randomised controlled study or control groups. Quasi-experimental studies compare different treatments where the treatments are not randomised or are not controlled by the researcher (e.g. comparing responses pre and post treatment in same patient)

1.8.3 Results:

Figure 1 outlines the results of the search and selection process. A total number of 4356 studies were found on the initial database search. A total of 113 papers were included after the abstract check, however only 95 of these had the full text available. From the 95 texts, there were 32 reviews, two of which were systematic reviews, 13 were studies of animal-assisted therapies, four studies of working equids and 23 experimental or quasi-experimental studies. A total of 72 studies were excluded from final analysis as they did not meet the final inclusion criteria defined in table 1. There were 23 papers which met the final inclusion criteria and were therefore analysed and data presented in extraction tables to compare study, method, and population characteristics.

Study characteristics:

Extraction Table 3 comprises data regarding the study characteristics for each of the studies meeting the final selection criteria. Of the 23 studies that met the final selection criteria, the majority were carried out in Europe (n=12), with six of these conducted in the UK. For the 23 studies, the dates of publication were all within the last sixteen years. Thirteen studies were performed within the last five years (2013-2018), six studies were performed between 2008 and 2013 and four studies were published before 2008. When reviewed the following methods were used; interviews (n=2), questionnaires (n=8), mixed methods (n=1), ethnographic studies (n=5) and behavioural observational studies (n=7).

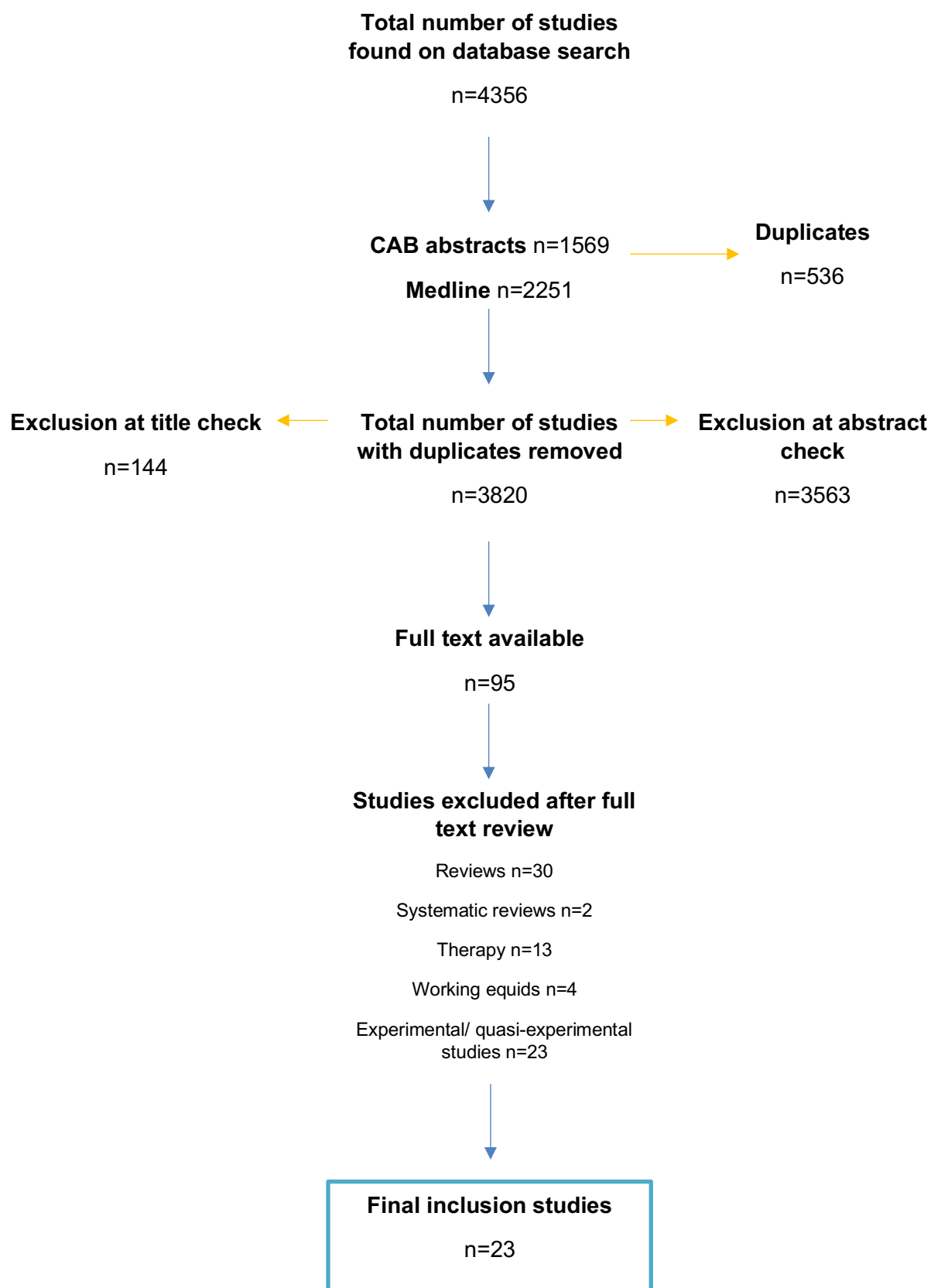


Figure 1: Flow chart demonstrating the protocol used for a scoping review on the current literature exploring the horse-human relationship and how the final 23 inclusion studies were identified.

Table 3: Data extraction table presenting the characteristics of the 23 studies that met the final inclusion criteria of a scoping review on current literature exploring the horse-human relationship.

Publication	Author	Date	Location	Methodology/ study design
Equine gatekeepers, animal narratives and foxhunting landscapes	Acton, A	2014	England, UK	Ethnographic study
Companion animals as self-objects	Brown, S.E	2007	Alabama, USA	Semi-structured interviews
An investigation of human-animal interactions and empathy as related to pet preference, ownership, attachment, and attitudes in children	Daly, B. and Morton, L.L.	2006	Ontario, Canada	5 instrument questionnaire
Tools of the trade or part of the family? Horses in competitive equestrian sport	Dashper, K	2014	England, UK	Ethnographic study
Listening to horses: Developing attentive interspecies relationships through sport and leisure	Dashper, K	2017	England, UK	Ethnographic study
"Riding up forested mountain sides, in wide open spaces, and with walls": developing an ecology of horse-human relationships	Davis <i>et al.</i>	2013	Midwestern, USA and Northern Norway	Ethnographic study
Training methodologies differ with the attachment of humans to horses	DeAraugo <i>et al.</i>	2014	Global	Questionnaire
The Human-Animal Interaction Scale: development and evaluation	Fournier <i>et al.</i>	2016	USA	Behavioural observation
Importance of personality traits in horses to breeders and riders	Graf <i>et al.</i>	2013	Global	Online Questionnaire
A brief note on some possible factors involved in the reactions of horses to humans	Hausberger <i>et al.</i>	2002	Saumur, France	Behavioural observation

Equipment and training risk factors associated with ridden behaviour problems in UK leisure horses	Hockenhull and Creighton	2012	UK	Questionnaire
The strengths of statistical techniques in identifying patterns underlying apparently random behavioural problems in horses	Hockenhull and Creighton.	2012	UK	Data analysis of an online questionnaire
Factors influencing the attitude of equestrians towards sport horse welfare	Ikinger <i>et al.</i>	2016	Germany	Online Questionnaire
Separating a horse from the social group for riding or training purposes: a descriptive study of human-horse interactions	Jorgensen <i>et al.</i>	2011	Eastern Norway	Behavioural observation
Investigating horse-human interactions: the effect of a nervous human	Keeling <i>et al.</i>	2009	Sweden	Behavioural observation
My Horse Is My Therapist: The medicalization of pleasure among women equestrians	Lee Davis <i>et al.</i>	2015	Midwestern USA and Arctic Norway	Ethnographic study
Pet ownership and adolescent health: cross-sectional population study	Mathers <i>et al.</i>	2010	Victoria, Australia	Questionnaire
Euthanasia in aged horses: relationship between the owner's personality and their opinions on, and experience of, euthanasia of horses	McGowan <i>et al.</i>	2012	Queensland, Australia	Questionnaire
Domestic horses send signals to humans when they face an unsolvable task	Ringhofer <i>et al.</i>	2017	Kobe, Japan	Behavioural observation
Could it be colic? Horse-owner decision-making and practices in response to equine colic	Scantlebury <i>et al.</i>	2014	North-West UK	Mixed-methods: Interviews and cross sectional questionnaire
Behaviour patterns of horses can be used to establish a dominant-subordinate relationship between man and horse	Sighieri <i>et al.</i>	2003	Arezzo, Italy	Behavioural observation

Over-riding concerns: developing safe relations in the high-risk interspecies sport of eventing	Thompson <i>et al.</i>	2016	Australia	Interviews
Developing a horse welfare assessment protocol	Viksten <i>et al.</i>	2017	Sweden	Behavioural observation

Method characteristics:

A comparison of the method characteristics of the final inclusion studies has been presented in extraction Table 4. The measures used in the studies included; thematic analysis (n=6), interview scoring guide (n=1), instrument, tool or scale (n=4), Likert/ VAS scale (n=1), component analysis of data (n=1), behavioural scoring (n=4), open and closed questions (n=2), physiological parameters (n=1) and mixed measures (n=3). The aims of each of the studies were all individual to the studies themselves and there were no studies investigating the same or similar aims and objectives. However there were some similarities between studies and the areas which they explored. These areas included; the influence of human-animal relationship on psychological wellbeing (n=2), the importance of personality traits to breeders (n=1), development of scales (n=1), equine welfare (n=2), horses within sport and leisure (n=3), human attachments and bonds to horses (n=2), equine training methodologies and behaviour (n=4), equine euthanasia (n=1), colic decisions (n=1), the effect of humans on equine behaviour and reactions (n=4) and horse-human ecologies (n=2).

Population characteristics:

Extraction Table 5 presents the population characteristics of these studies. The majority of the studies focused on one perspective rather than the two way interaction involved in the horse-human relationship; Perspective of the horse (n=17), perspective of humans (n=5), perspective of both (n=1).

Table 4: A data extraction table presenting the method characteristics for 23 publications that met the final inclusion criteria of a scoping review of literature exploring the horse-human relationship.

Study	Author	Aim of study	Measures	Important outcomes
Equine gatekeepers, animal narratives and foxhunting landscapes	Acton, A	Exploration of the connection between mounted fox hunting packs and the landscape.	Narratives of past and present foxhunters to give an ethnographic account of the role of the horse in the fox hunting culture.	Using animals as 'co-actors' rather than subjects in ethnographic approaches promoted appreciation of the environment and the animals within it.
Companion animals as self-objects	Brown, S.E	Exploring if self-psychology can be systematically applied to human-animal relationships.	Scoring guide to self-object type was developed and used on the interview transcripts	Self-psychology could be successfully applied to the human-animal relationship. In this study, animals were found to rival or surpass humans in the ability to provide self-object needs.
An investigation of human-animal interactions and empathy as related to pet preference, ownership, attachment, and attitudes in children	Daly, B. and Morton, L.L.	Investigation of the relationship between children and pets in regards to pet preference, ownership, attachment and attitudes.	The pet ownership survey (Daly and Morton 2003) The Bryant (1982) Index of Empathy The pet preference inventory (Daly and Morton 2003) The Lexington Attachment to Pets Scale (Johnson <i>et al.</i> 1992) The Pet Attitude Scale (Templer <i>et al.</i> 1981)	Those who were highly attached to their pets were more empathetic than those who were less attached. Girls were more empathetic than boys. Empathy was higher for those who expressed a preference for horses and birds.

Tools of the trade or part of the family? Horses in competitive equestrian sport	Dashper, K	Horses in competitive equestrian sport and altering the horse-human relationship.	Loosely structured interviews around 4 broad themes: participants' involvement in equestrian sport, how that involvement fits in with or clashes with other areas of life, goals and motivations within the sport, and attitudes to the horses they ride.	The emerging key themes included; the changing nature of equestrian sport, the influence of owners and the feelings of mutual respect and affection that can develop between horses and humans.
Listening to horses: Developing attentive interspecies relationships through sport and leisure	Dashper, K	Consider some ways in which human participants try to develop attentive relationships with their equine partners.	Transcription and thematic analysis of interviews and field notes taken in a three year period.	Participants were acutely aware of their horses as individuals with personalities, likes, dislikes and their decision-making ability. Horses were described by the participants as 'persons'. Emerging themes included; guardianship, affection and relationship building.
"Riding up forested mountain sides, in wide open spaces, and with walls": developing an ecology of horse-human relationships	Davis <i>et al.</i>	To demonstrate the complex ways in which terrains ridden on effect shared ecologies of horse-rider relations, identities, and psyches.	Analysis of narrative data using a grounded, practice theory.	Dressage horses and their riders become "attuned, focused and in-touch". Event riders stressed the importance of shared trust, fearlessness and their confidence in the horse. Endurance horse and riders relate to stamina, conditioning and stoic endurance for survival. It was found that horse and human "are paired together, defined, distinguished, and identified" by the environments that they are in.

Training methodologies differ with the attachment of humans to horses	DeAraugo <i>et al.</i>	Using attachment theory to investigate whether the attachment between rider or handler and horse differed according to the preferred training method.	9 items used to assess attachment using a seven point scale. Scores were calculated for avoidance and anxiety and statistically analysed.	Behavioural training participants scored more highly on the attachment-avoidance scores. The behavioural and eclectic training methods were associated with higher levels of education.
The Human-Animal Interaction Scale: development and evaluation	Fournier <i>et al.</i>	Development and evaluation of The Human-Animal Interaction Scale.	Completion of the Human-Animal Interaction scale a 5 point Likert scale rating the engagement of animals in various behaviours.	Analysis indicated good reliability and on test-retest the ratings remained consistent up to a week following the interaction. Potential use to predict pet adoption, relinquishment, caretaking or abuse.
Importance of personality traits in horses to breeders and riders	Graf <i>et al.</i>	The importance of personality traits in horse to breeders and riders.	41-item web based questionnaire containing open and closed questions and Likert and ranking scales.	Temperament, character traits and willingness to work were assigned more weight. Less weight was given to performance traits like quality of trot or show-jumping. However the relative weighting of traits varied between the different groups of rider. Ease of daily work, safer handling and horse-human relationship were commonly listed in answer to why personality traits are important.

A brief note on some possible factors involved in the reactions of horses to humans	Hausberger <i>et al.</i>	Possible factors involved in the reactions of horses to humans	Observation and scoring of posture using Waring and Dark's (1978) observations.	More horses showed a friendly behaviour opposed to an aggressive behaviour towards an unfamiliar human. Inter-individual variations in reaction were clear and had a good consistency. Factors involved in those variations included the breed and the usual caretaker. Horses depending on the same caretaker for their daily routine were found to have similar responses which differed from that of other groups.
Equipment and training risk factors associated with ridden behaviour problems in UK leisure horses	Hockenull and Creighton	Identify risk factors associated with ridden behaviour problems in UK leisure horses from the training approaches and equipment used.	Sixteen questions regarding the type of work undertaken with the horse, the types of equipment and training methods used on it and the regularity that professional services (farriers, saddlers and dentistry professionals) were employed. Respondents were also asked to rate using rating scales the frequency that their horse performed fifteen different behaviour problems over the last week it was ridden.	Risk factors associated with the ridden behaviour problems included; the design and fit of the saddle, with dressage and working hunter saddles associated with a reduced risk of ridden behaviour problems compared to general purpose saddles. The horse's foot-care and shoeing routine was associated with three of the four groups of behaviour problems. An increased time (seven weeks or more) between farrier visits was associated with an increased risk of discomfort behaviour. The use of artificial training aids was associated with an increased risk of behaviour problems. Spending more time with the horse outside of training situations was associated with a reduced risk of problems.

The strengths of statistical techniques in identifying patterns underlying apparently random behavioural problems in horses	Hockenhull and Creighton.	How principal components analysis has been used to identify relationships underlying individual behaviour problems in horse	Principal component analysis of data from 3 linked cross sectional questionnaires	44 individual behaviour problems, including stable-related and handling behaviour problems, pre-feeding behaviour problems, and ridden behaviour problems, were reduced to 12 behaviour problem components. Each component was composed of groups of behaviour problems that may share a common underlying aetiology. The study findings demonstrated the value of statistical techniques in identifying associations between apparently random behaviour problems.
Factors influencing the attitude of equestrians towards sport horse welfare	lkinger <i>et al.</i>	Factors influencing the attitude of equestrians towards sport horse welfare	150 questions with the majority using 5-point Likert scale	The factors with the greatest impact on the AHW were the affection for animals, the attitude towards classically organised equestrianism and the utility orientation. Gender, income, agricultural background, tradition, brand orientation and the importance of breed and pedigree were also found to have a significant influence on the AHW. Age and involvement in horse-riding as a hobby were found to have no effect on the AHW.
Separating a horse from the social group for riding or training purposes: a descriptive study of	Jorgensen <i>et al.</i>	Difficulty of haltering and separating a horse from a group for riding or trainer purposes and how human-	In each group, the horse owner or keeper (handler) were asked to enter the group, approach his/her horse, halter it and lead it out through the gate, then keep the horse standing out of sight from other horses for	Only 1 out of 100 horses moved away from the handler when approached. Ninety-six percent of the target horses followed their handler without showing any resistance. In 75% of the tests, the other horses did not interact with the target horse and/or handler. Separating a horse from its group can be considered relatively safe and unproblematic,

human-horse interactions		horse interactions could affect this.	two minutes. Interactions were video recorded and behaviours were scored.	if there are good management practices and trained handlers.
Investigating horse-human interactions: the effect of a nervous human	Keeling <i>et al.</i>	The effect of a nervous human on horse-human interactions	Heart rates and direct behavioural observations made and scored on a 3,4 or 5 point scale	There was an increase in heart rate for both the person and the horse. The findings indicate that analysis of heart rate recorded simultaneously from people and horses under different experimental handling or riding conditions presents a useful tool to investigate horse-human interactions.
My Horse Is My Therapist: The Medicalization of Pleasure among Women Equestrians	Lee Davis <i>et al.</i>	The role that horse-human interactions may play in well-being and impairment among a sample of everyday riders	Thematic analysis of lifecycle narratives	The themes that were identified included: pleasure, fun, joy, benefits and therapies.
Pet ownership and adolescent health: cross-sectional population study	Mathers <i>et al.</i>	Adolescent health and wellbeing associated with having a pet in the household	BMI was measured by trained researcher. The average daily physical activity level was measured using MARCA and self-report. Blood pressure was measured using digital BP monitor. Health status was measured by the paediatric QOL inventory. QOL	Owning a pet or time spent caring for/ playing with a pet was not related to adolescent health or well-being. Having horse(s) was associated with slightly higher self-reported paediatric QOL. Physical Summary scores with horses had a mean of 85.6 and without horses 87.8 (P=0.01). The study findings however had relatively weak associations and were to be interpreted cautiously.

			measured using KIDSCREEN and self-report.	
Euthanasia in aged horses: relationship between the owner's personality and their opinions on, and experience of, euthanasia of horses	McGowan <i>et al.</i>	Relationship between the Owner's Personality and Their Opinions on, and Experience of, Euthanasia of Horses	Questionnaire on euthanasia of horses and a self-assessment five factor personality test.	Most owners considered euthanasia of a horse to be a difficult decision, which they based on the horse's current health, anticipated future quality of life, and veterinary advice. Owners reported the loss to be a distressing experience rather than providing a sense of relief. Female owners who found it more difficult to make the decision were more likely to have neurotic personalities and based their decision more on their relationship with the horse and the horse's quality of life. Veterinarians play an important role in the diagnosis of health factors that influence the decision to euthanise. The personality of the owner may influence the extent to which they find euthanasia distressing, especially in female horse owners.
Domestic horses send signals to	Ringhofer <i>et al.</i>	Investigation as to whether and how horses	Each horse participated in three conditions in a single day (one test and two	Horses communicated to their caretakers using visual and tactile signals. The signalling behaviour of the horses

humans when they face with an unsolvable task		send signals to their potentially helpful but ignorant caretakers in a problem-solving situation. And whether horses alter their behaviours on the basis of the caretakers' knowledge of where the food was hidden	control). The three phases were observed, recorded and coded.	significantly increased in conditions where the caretakers had not seen the hiding of the food. Suggesting that horses alter their communicative behaviour towards humans in accordance with humans' knowledge state.
Could it be colic? Horse-owner decision-making and practices in response to equine colic	Scantlebury <i>et al.</i>	Horse owner decision-making in response to equine colic	15 interviews were analysed to conceptualise the processes involved in Horse-owner management of colic. Cross sectional survey of 673 horse owners designed to test the concepts found.	Veterinary-client communication was important during a colic episode in assisting owners during the decision-making process. From the interviews, the cost of veterinary assistance and treatment influenced the timing of the decision to call the veterinary surgeon and consenting to surgery. Money was not an influencing factor in the survey.
Behaviour patterns of horses can be used to establish a dominant-subordinate relationship	Sighieri <i>et al.</i>	Investigating how humans can enter the social hierarchy of the horse by mimicking the behaviour and stance it uses	Methods based on the three elements fundamental to the equilibrium of the herd: flight, herd instinct and hierarchy. The trainer-horse relationship was established in three phases: retreat, approach and association.	All horses responded to their trainer. 4/5 completed the 3 phases on the same day. 1 horse took several days however all phases were completed. Observations suggest that it's possible to manage unhandled horses without coercion by mimicking their behaviour patterns.

between man and horse		to establish dominance.	Response time was measured for each phase.	
Over-riding concerns: developing safe relations in the high-risk interspecies sport of eventing	Thompson <i>et al.</i>	Developing safe human-horse relationships in eventing by understanding how risk perception and experience subjectively is implicated in thorough and by the horse-human relationship.	Immersion, coding, categorising and generation of themes. The analysis of the interviews was sensitised around the perceptions of risk, experience of risk, rider concerns and rider mitigation.	Findings were consistent with the following three theories of voluntary risk taking; edgework, sensation-seeking and flow. Further mixed methods research has been suggested to fully evaluate the use of existing risk theory for understanding participant experiences of high-risk sports like eventing.
Developing a horse welfare assessment protocol	Viksten <i>et al.</i>	Development of a horse welfare assessment protocol.	15 animal based, 24 resource based and 8 management based measures used. This was repeated after 16-25 days with the same horses.	The ability to use this assessment tool for up to 22 horses a day. Changes to draft protocol were made and include an echogram to assess the human-animal relationship.

Table 5: A data extraction table presenting the population characteristics of 23 publications that met the final inclusion criteria of a scoping review of literature exploring the horse-human relationship.

Author	Participants	Population size	Perspective
Acton (2014)	Horse, rider and landscape in foxhunting culture	N/A	Human
Brown (2007)	Members of a social media group for rescuing horses	24	Human
Daly and Morton (2006)	Children aged 8-14 years	155	Human
Dashper (2014)	Elite horse riders	26	Human
Dashper (2017)	Amateur horse riders and caregivers	17	Human
Davis <i>et al.</i> (2013)	Horse people competing in different disciplines	60	Human
DeAraugo <i>et al.</i> (2014)	Horse riders and handlers	583	Human
Fournier <i>et al.</i> (2016)	Undergraduates from a South-eastern university and a Midwestern university. Outpatients from a Midwestern counselling centre Inmates from a south-eastern correctional facility	295	Human
Graf <i>et al.</i> (2013)	Sport riders, leisure riders, and breeders	1087 participants	Human
Hausberger and Muller (2002)	Adult horses	224 horses	Horse
Hockenhull and Creighton (2012a)	Leisure horse owners and their horses	1326 owner reports on horses	Human
Hockenhull and Creighton (2012b)	Leisure horse owners – component analysis of 3 studies	Stable related and handling – 1230 horses Pre-feeding behaviour – 890 horses	Human

		Ridden behaviour – 791 horses	
Ikinger <i>et al.</i> (2016)	Equestrians	2947	Human
Jorgensen <i>et al.</i> (2011)	Horses	20 groups of horses	Horse
Keeling <i>et al.</i> (2009)	Horses, handlers and riders	Leading – 10 horses and 20 handlers Riding – 17 horses and 17 riders	Horse and human
Lee Davis <i>et al.</i> (2015)	Non-professional equestrians	50	Human
Mathers <i>et al.</i> (2010)	Students in year 8-11	928 students	Human
McGowan <i>et al.</i> (2012)	Horse owners of aged horses	111 owners	Human
Ringhofer <i>et al.</i> (2017)	University horses and student caretakers	8 horses	Horse
Scantlebury <i>et al.</i> (2014)	Horse owners with colic experience	15 interviewees 673 horse owners – questionnaire	Human
Sighieri <i>et al.</i> (2003)	Unhandled mares	5 Haflinger mares	Horse
Thompson and Nesci (2016)	Eventers	21 participants	Human
Viksten <i>et al.</i> (2017)	Swedish riding school horses	37 horses	Horse

1.8.4 Discussion:

The human animal relationship has become an increasingly popular area for scientific research (Hosey and Melfi, 2014, Dashper, 2017). Research in this area has predominantly explored the relationships humans have with companion animals, and only more recently the relationship humans have with horses. The use of such a broad research question for the scoping review performed in this study was deemed beneficial to gain an understanding of the current scientific research involving the horse-human relationship and what, if any, specific research areas could be identified. However it also raised challenges - the ambiguity of the research question and search terms used may therefore have influenced the large variability in the studies that met the final selection criteria for the review. This may also be a contributing factor to the identification of literature involving working equids and animal-assisted therapies. It was decided after the initial database search and categorisation of research areas, that these research areas would be excluded from the final scoping review, allowing the focus to remain on the relationship between humans and horses applicable to the main horse owning population within the UK. It is important however, to appreciate that the relationship humans have with working equids and the use of equids in animal-assisted therapies, are important areas of research within the horse-human relationship. These require further investigation to gain a better understanding of the available research within the areas themselves, independent of this study. The results of the initial searches from the scoping review highlights the numbers of publications in each area, which will be helpful to inform future systematic reviews.

Twenty-three studies met the inclusion criteria for the review. It's difficult to explicitly know if this is a true representation of all available publications on the

research area. Although only two databases were used for the literature search, these databases were deemed the most appropriate for veterinary literature (Grindlay *et al.*, 2012). A systematic review investigating human-animal relationships, bonds and interactions performed by Hosey and Melfi (2014) identified 116 publications involving companion animals (dogs, cats and equids), 22 of these involved the human-animal relationship. It's unknown how many of these publications involved equids exclusively, however it suggests that twenty three publications identified by this current study is a sufficient number.

Scoping reviews, unlike systematic reviews, do not strive for evidence synthesis or appraisal of research quality of the studies, but instead pose a transparent and thorough map of research areas identified (Arksey and O'Malley, 2005). Heterogeneity across the twenty three publications identified during this scoping review, highlights one of the benefits of performing a scoping review prior to an extensive literature review. Very limited comparisons of aims, objectives and methodologies could be drawn across the publications, hence the benefit of now being able to evaluate the relevance and worth of performing a rigorous literature review on the broad research question. Nonetheless, various research areas were identified within this review, with some containing more publications than others, including; equine training methodologies and behaviour, horses within sport and leisure, and equine behaviour and reactions towards humans. It may be more appropriate and consequently beneficial, to further investigate these areas independently, with the findings of this scoping review guiding and informing a more specific and focused search within these areas and the evidence questions.

Of the publications reviewed, only one involved the dyadic relationship of human and horse, with the majority focusing only on one perspective (horse or human). The lack of exploration of the two way interaction between humans and animals was also identified by Dwyer *et al.* (2006), subsequently leading to the development of the Monash Dog Owner Relationship Scale. Further research into the two-way relationship between horses and humans, may be beneficial to understand how best to match horses with owners or riders, and to prevent incompatibilities that may become detrimental to the horse or human.

A diverse range of publication aims, objectives and methodologies were identified in this review, and there was significant diversity in the research areas and topics. Some major gaps in the research and lack of evidence for a number of areas were identified, and these were used to identify areas which should be considered for future research:

1. Development of a reliable and repeatable system of categorizing the types of people involved with horses and their relationships with their horses.
2. Defining the different types of relationships that humans form with horses and other equids, and which horse and owner factors influence the relationship.
3. Investigation of how the horse-human relationship influences the way in which owners care for and manage their horses and other equids, including decision-making on key events such as seeking veterinary attention and when an animal should be euthanased.

1.8.5 Conclusion:

It can be concluded that the research surrounding the relationship between horse and human is extremely diverse and heterogeneous, with a distinct lack of a robust evidence-base. From a scoping review of the literature, key areas of current research evidence were identified and defined, but gaps within the research body exploring the horse-human relationship were also documented. This review highlights the need for further investigation (systematic reviews) into the main research areas defined by the review, but also the need for new studies to fill significant gaps within the research. Gaining an understanding of the relationships we have with animals is an important area of research as it helps us understand how and why health and welfare may be compromised by inadequate or inappropriate decision-making. The horse-human relationship is clearly a key component of this, but is lacking a significant evidence-base.

Exploration into the relationships that horse owners have with their horses, and the influence this may have on their decisions was identified as an area with little published literature. Within this Masters thesis, a mixed methods approach of qualitative interviews and quantitative cross-sectional surveys will explore the influence the relationship owners have with the horses in their care, and will be used to recommend areas where further research would be most beneficial.

Chapter 2: Interviews of horse owners on their experiences and motivations during key events within a horse's lifetime.

2.1 Background:

Scientific knowledge is based on empirical testing and often predominates clinical thinking (Smith, 2002), notably within veterinary medicine. It's the other, more tacit but equally important, forms of knowledge, that qualitative research aims to give rigour to its interpretation (Christley and Perkins, 2010). Qualitative research has been deemed important in producing insights into the social world in natural settings, giving importance to meanings, experiences and views of those involved (Litva *et al.*, 2010).

A recent review of the use of qualitative research within veterinary medicine, specifically in-depth interviews, has been presented by May (2018). It concluded that qualitative interviews can enhance and deepen insights into various aspects of veterinary medicine. Despite this it has been noted that qualitative literature is uncommon within veterinary research (Christley and Perkins, 2010). However, those studies that have explored areas within veterinary medicine using qualitative methods, like in-depth interviews, have reported benefits with which the methods enhanced knowledge and understanding of the research area.

One example of this was the use of in-depth interviews to explore ineffective infection control strategies by veterinarians against Hendra virus, performed by Mendez and colleagues (2013). They concluded that the use of interviews following an outbreak of Hendra virus, allowed veterinarians to express their personal perspectives and experiences with great depth and breadth. This

was found to be a vital step in identifying the best practice to manage complex veterinary problems, such as disease outbreaks.

Following a scoping review of literature exploring the horse-human relationship, one gap within the body of literature identified was how the relationship owners have with their horse may influence the decisions made throughout its lifetime. With researchers highlighting several benefits to qualitative methods, in particular for enhancing knowledge and understanding of the perspectives of participants, the use of in-depth interviews to explore this area of the horse-human relationship is fundamental.

2.1.1 Aims and objectives:

The aim of this study is to investigate the influence that the relationship owners have with their horses has on several important decisions made throughout their ownership. Two interviews will be performed with each participant to explore the following questions;

- What experiences and opinions do horse owners have around purchasing horses and using preventive healthcare measures?
- What experiences have owners had with professional intervention and end of life decisions for their horses?

Participants will be recruited from an online cross-sectional questionnaire exploring the characteristics of the human population currently involved with the decisions made for horses in their care.

2.2 Materials and methods:

2.2.1 Study design:

An initial survey was conducted to explore the characteristics of horse owners, their relationship with horses and their information-seeking behaviour for a variety of equine topics. This survey identified some key themes to explore in the interviews, and was used to define different owner types which was then used to recruit a smaller number of participants for the interviews with a range of experiences. Two semi-structured interviews were conducted with 11 participants. The first interview explored purchase and preventive healthcare decisions, and the second explored the use of professionals and euthanasia decisions. Interviews were conducted over a twelve week period from January to March 2018. Interviews were transcribed verbatim and thematically analysed using both an inductive and deductive approach.

2.2.2 Participant recruitment:

Sample population:

The target population was people who are involved in decision-making for purchase, healthcare provision and euthanasia of horses. This includes people with a range of experience with horses, working within different areas within the equine industry, and also people who may not own horses themselves but loan, share or care for horses on a daily basis. The survey was therefore targeted at anyone who owned, cared for or worked with horses and other equids. The participants invited to interview had experience of purchasing a horse, and of euthanasia.

Questionnaire development:

The questionnaire consisted of open and closed questions using a range of formats. These included: multiple choice questions, free text boxes, Likert 5-point scales, sliding point scale questions and the use of scenarios. The first part of the questionnaire included an introduction and information describing the study, including the follow up interviews. This was followed by a consent section, where participants could also provide email contact details if they were interested in participating in the interviews. The main body of the questionnaire consisted of three sections:

1. Participant's demographic information including their opinion on their relationship with their horse.
2. Information on the main horse in their care including financial spend and budgeting.
3. Participant opinion and experiences of different information resources, using different case scenarios.

An introductory paragraph was included at the start of each section. The questionnaire was written and developed in Microsoft word and then transferred onto and piloted using SurveyMonkey (SurveyMonkey Inc.), an online internet survey programme.

Pilot survey:

The survey was piloted in a focus group of six horse owners (Appendix 1). Amendments were made (Appendix 2), and the questionnaire was further piloted by another six participants (four horse owners and two members of

staff at the University of Nottingham's School of Veterinary Medicine and Science). The finalised questionnaire (Appendix 3) was then reviewed and approved by The University of Nottingham's School of Veterinary Medicine and Science Ethics Committee.

Survey Dissemination:

The questionnaire was disseminated via both email and social media platforms through snowball sampling methods. The questionnaire was sent to Pony Club Area contacts and The British Riding Club groups, who had contact emails provided on websites. The questionnaire was shared via 'The Nottingham Equine Colic Project' social media profiles on both Facebook and Twitter. The link to the questionnaire was shared on a weekly basis from November 2017 to January 2018 on Facebook and Twitter. Recruitment flyers were given out to attendees of information talks on Colic at two equine vet practices (Figure 2).

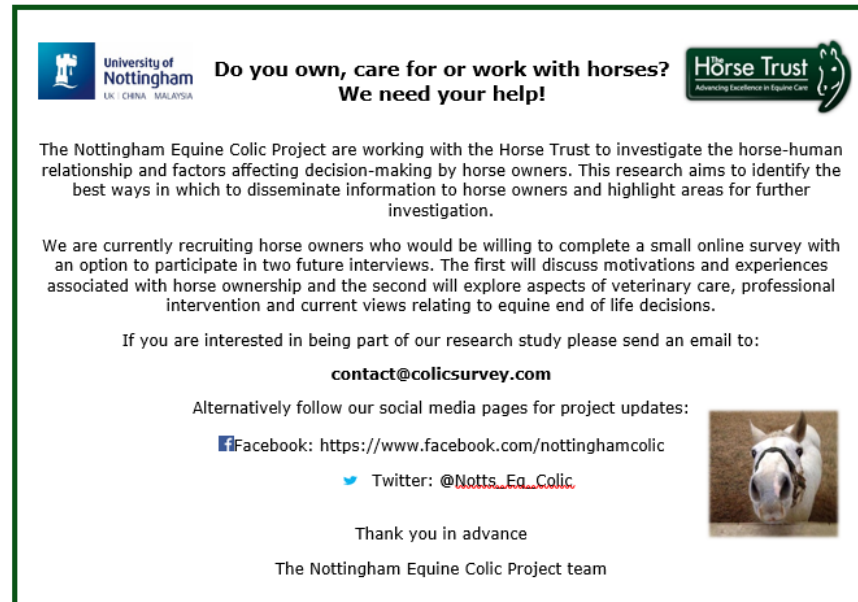


Figure 2: Recruitment flyers given to horse owners attending colic information talks at two equine vet practices to promote participation in an online survey of horse owners' and carers' opinions and experiences of purchase and euthanasia decisions for their horses.

Data collection:

Responses were collected, organised into Excel spreadsheets and then saved once a week to the University online cloud 'OneDrive' (Microsoft), in password protected files. A record of email addresses used was securely stored and any incorrect addresses were removed from the email contact groups. Once the survey was closed, a list of participants who were interested in and consented to the interviews was generated. These participants were further filtered by the responses to the questionnaire and their experience with euthanasia and purchasing of a horse. Further owner typing was carried out and will be outlined below.

Data Analysis:

Descriptive analysis was performed on the data collected. This included calculating the mean, median and range for continuous data and the percentage frequencies and mode for nominal data. Open text boxes were categorised and ranked according to the frequency of responses.

2.2.3 Participant selection criteria:

The introduction to the survey (Appendix 3) contained a brief outline of what the two interviews would involve and how to register an interest in participation by providing their email. If participants wanted to opt out of participating in the interviews after completion of the survey they were also able to do so. There were 445 participants interested in the further interviews. Thirty four of these chose to opt out at the end of the questionnaire.

The final 411 participants were then filtered by their answers to Question 15 and Question 17; 'From the total number of horses you have owned/ kept, how many of these have you personally purchased?' and 'Have you had any of your horses put to sleep?' respectively to identify those with experience of both. Participants that had purchased a horse and had experience of euthanasia with their horses were then further categorised into 6 groups (Table 6 and Figure 3), to select a range of horse owner types and experiences for interview. Participants were given personal identification numbers and were randomly sorted into a list for each group. From each list, the first two participant numbers were checked for survey completion and invitation emails were sent to the email address provided, including a consent form (see Appendix 4).

If there was no response after seven days, a follow-up email was sent. If there was no response from the follow-up email, the next participant on the group list was then contacted using the same method until there were two participants from each of the 6 groups. There was no response from the three participants in Group 1 after four weeks, and so the group criteria was revised to include participants that put at least four of the most frequent answers for the Horse-Human relationship question (question 11).

Table 6: The six owner groups identified from analysis of responses to an online survey of horse owners and carers' opinions and experiences of purchase and healthcare decisions, and euthanasia of their horse.

Group 1	Participants that selected the mode response for all statements	Strongly agree horses are pets, a passion or hobby, part of the family and have a soul Agree that horses are working animals Strongly disagree that working with horses is their profession
Group 2	Experienced professionals	Self-ranking experience of more than 8 Strongly agree or agree that working with horses is their profession
Group 3	Non experienced, non- professionals	Self-ranking experience of less than 4 Strongly disagree or disagree that working with horses is their profession
Group 4	Pet relationship with horse	Strongly agree or agree their horse is a pet Strongly disagree or disagree horse is a working animal
Group 5	Working relationship with horse	Strongly agree or agree their horse is a working animal Strongly disagree or disagree horse is a pet
Group 6	Non ridden relationship with horse	Current role of the horse is non-ridden companion or retired

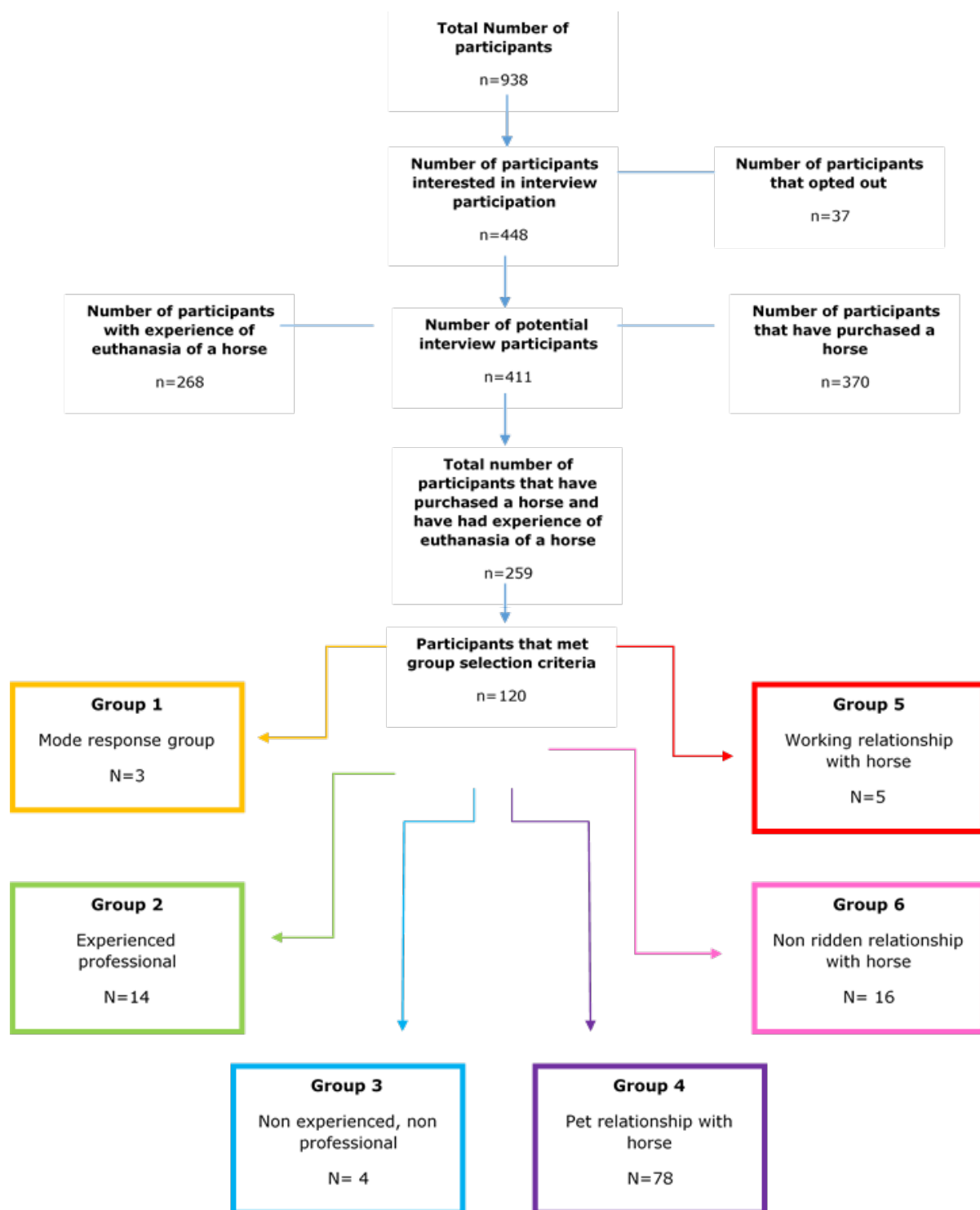


Figure 3: A flow chart demonstrating the participant selection criteria for semi-structured interviews from an online survey of horse owners and carers' opinions and experiences of purchase and healthcare decisions, and euthanasia of their horse (n=938)

2.2.4 Schedule development and pilot

Two interview schedules were developed. The first one explored participants motivations and experiences of purchasing a horse and the preventative healthcare measures that they use. The second explored participant's experiences and opinions of professional intervention from veterinarians and equine paraprofessionals, and euthanasia. Initial drafts for both interview schedules were piloted by three members of staff at The University of Nottingham's School of Veterinary Medicine and Science. Changes were made in response to feedback (Appendix 5) to produce the final interview schedules (Appendix 6 and 7).

When piloting the interview 1 schedule, it was deemed that some information would be better gathered as a pre-interview survey (see Appendix 8). The areas investigated in the pre-interview survey were; preventive healthcare (frequency of use and annual costs), and annual management and competition costs.

The final interview schedules were then piloted on a horse owner known to the researcher to establish how the questions flowed, and the anticipated timings of the interview.

2.2.5 Data collection

The interviews were carried out over the telephone at The University of Nottingham School of Veterinary Medicine and Science. The selected participants were invited to carry out the first interviews at a time that was most convenient to them during January 2018 and February 2018. Due to

unforeseeable circumstances some interviews had to be rescheduled, and all of the first interviews were carried out by March 2018. All interviews were recorded using a Dictaphone and transcribed using Dragon software (Nuance). The transcribed interviews were then rechecked by the researcher to check for transcription errors.

At the end of the first interview, participants were then invited to carry out the second interview at a time convenient to them in March 2018. One participant was unable to carry out the second interview due to personal circumstances that were deemed to have potential impact on the interview.

2.2.6 Data analysis:

Thematic analysis was deemed the most appropriate method of analysis. The six phase guidelines outlined by Braun and Clarke (2006) was used as a template when analysing each of the interview transcripts. Each transcript was individually and systematically coded, with initial codes noted down on a copy of the transcript. The transcripts were then coded again by both the researcher and blind coded by a colleague to confirm the codes identified. Similar codes were then organised into groups, identified as subthemes for this research, and suitable descriptions were given. The subthemes were further organised into themes for each of the interview sets (see results section).

2.2.7 Ethics and data protection:

This study was approved by the Nottingham University's School of Veterinary Medicine and Science Ethical Review Panel and Post Graduate Committee.

All participants were anonymised by using their designated participant numbers. Any data identifying to the person (e.g. names of children) were removed on transcription. All data collected was securely stored in a password protected file and no emails were kept by the researcher after recruitment in accordance to GDPR guidelines.

2.2.8 Reflexivity of researcher:

Reflexivity is a research method addressing researcher subjectivity within the qualitative field (Primeau 2003). Jootun *et al.* (2009) argue that reflection and understanding of how a researcher's opinions and values may influence the research itself should be incorporated into any qualitative study to increase credibility.

The researcher has been involved in the equine industry from a young age, owning, caring for, and riding her own and other's horses for many years. This has meant the researcher has had personal experience with many of the aspects explored in this study, including experience of purchasing horses, preventative healthcare, professional intervention and euthanasia. The researcher's personal opinions and experiences of the topics explored in this study may introduce some bias, however they may also provide some benefit, as the researcher is able to use relevant language and build a rapport with each of the participants during interviews.

Inter-observer reliability was applied to the transcripts to minimise the potential influence the researcher's experience and opinions may have had on the analysis of the interview data. The use of prompts within the interview schedules were deemed important by the researcher to prevent any personal

influence on the answers given by the participants, ensuring consistency between interviews.

2.3 Results

2.3.1 Recruitment survey:

Participant demographics:

A total of 938 participants completed the questionnaire with a study completion rate of 64%. The mean age of participants was 39.1 (range 18-74) with the majority of participants being female (97.4%, n=851/874). The most frequent way that participants categorised their relationship with their horses was 'owner' (91.6%, n=800/873), followed by 'rider' (38.0%, n=332/873) or 'owner and rider' (34.9%, n=302/873). The majority of participants spent between two and three hours each day with their horse (36.3%, n=317/873) with the next most frequent response being up to two hours each day (32.2%, n=281/873) (Figure 4). When asked about their relationship with their horse(s), 85% (n=732/875) of participants strongly agreed or agreed that their horses were pets and 92.9% (n=808/870) considered their horse(s) a part of their family. The majority of participants also considered their horse(s) to have a soul (86.1%, n=750/871 of participants strongly agreed or agreed) and a hobby/ passion of theirs (96.4%, n=840/871 of participants strongly agreed or agreed) (Figure 5). When asked to rank their experience with horses from 0-10 (least to most experienced), the mode response was 7 (n=269/873), with 67.7% (n=591/873) of participants ranking themselves a 7 or over. When asked about their experience of healthcare/veterinary treatment, the majority of participants (97.6%, n= 850/871) had experience of routine treatments, investigation of non-emergency conditions (87.1%, n=759/871) and investigation of emergency conditions out of hours (68.4%, n=596/871). Of the participants in this study, 62% (n=543/872) had experienced euthanasia of at least one of their horses.

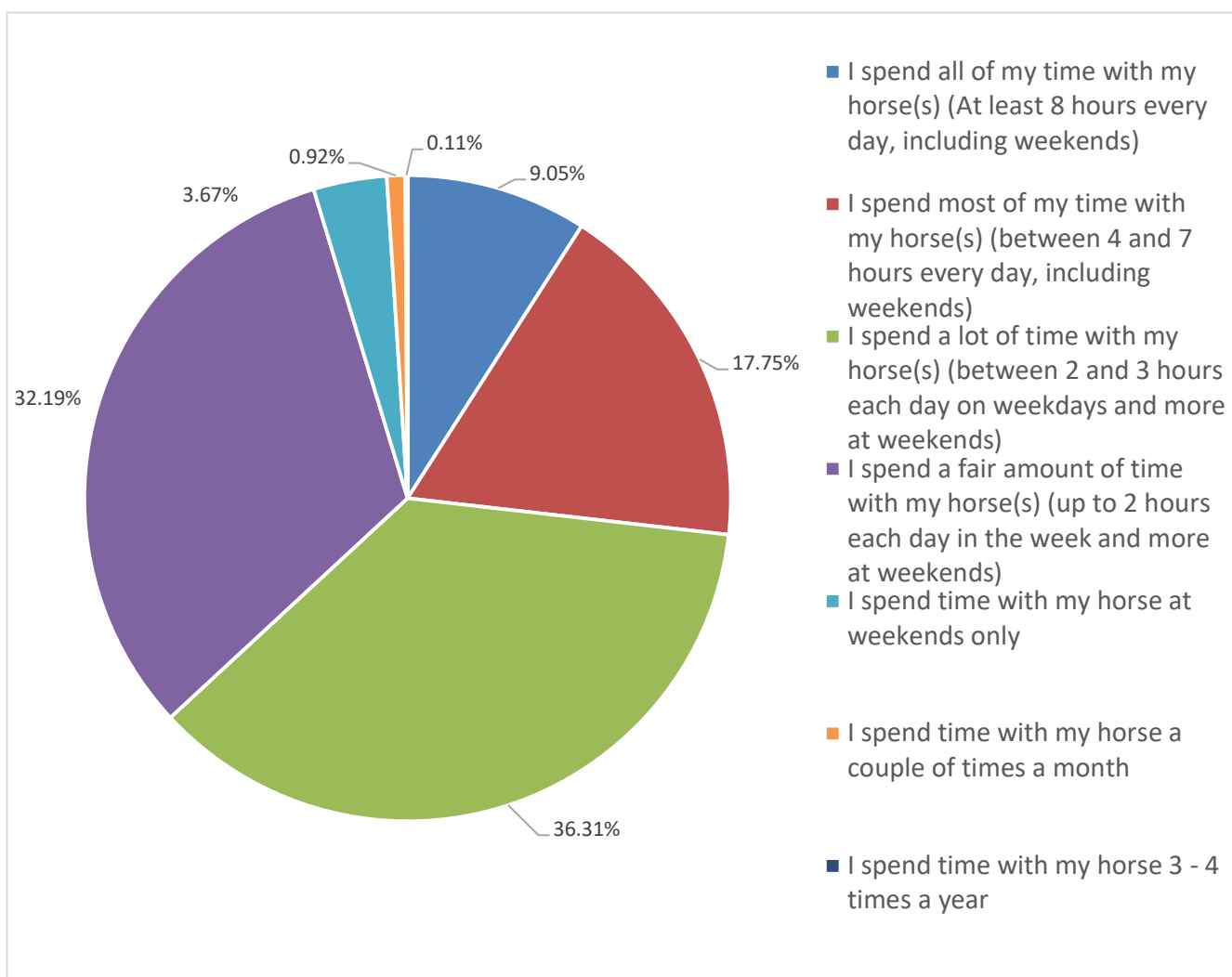


Figure 4: Participant responses to a closed question on how much time they spend with their horse. In response to an online survey of horse owners and carers' opinions and experiences of purchase and healthcare decisions, and euthanasia of their horse (n=873)

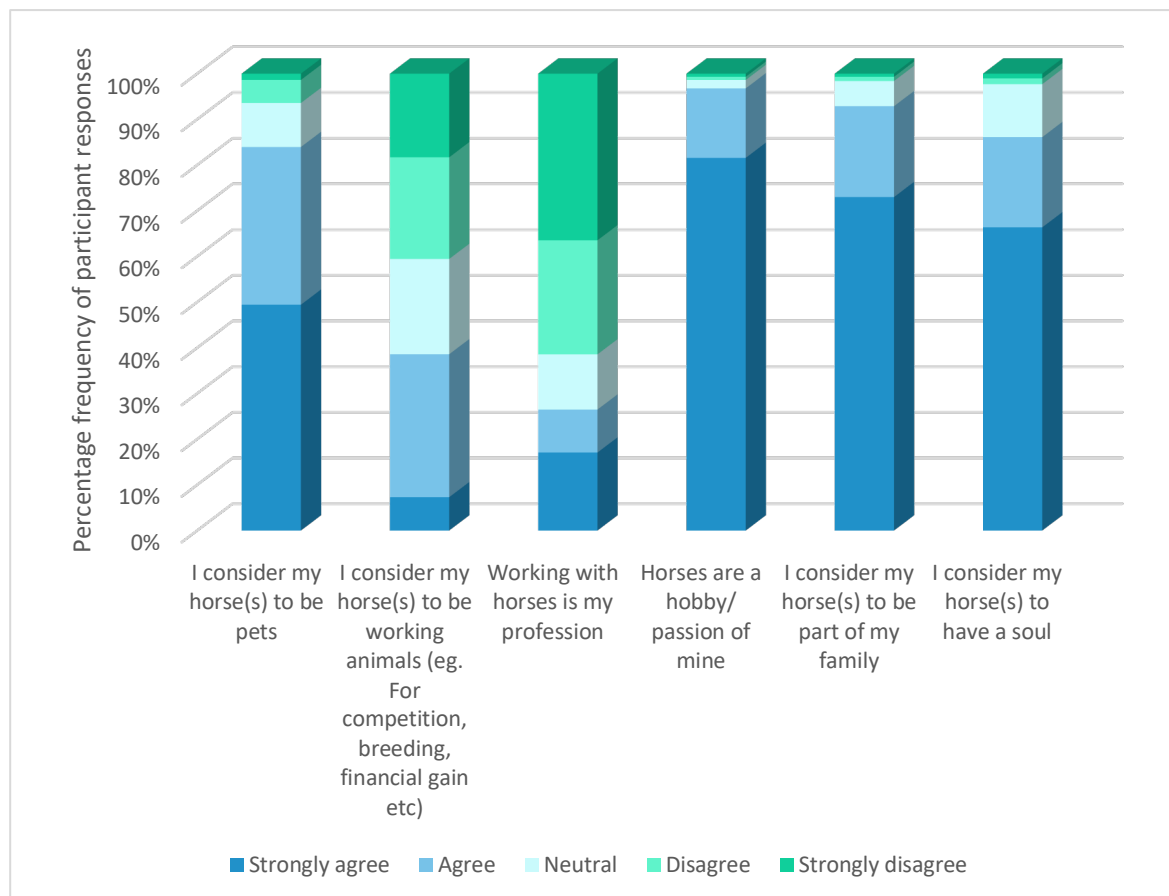


Figure 5: Participant response to a five point Likert style question on six statements regarding the relationship they have with their horses from an online survey of horse owners and carers' opinions and experiences of purchase and healthcare decisions, and euthanasia of their horse (n=875).

Horse demographics:

The mean age of horses in the participants' care was 13.2 years (range 0.5-38). The most popular breeds included sports horse type (32.2%, n=241/748), cob type (19.1%, n=143/748) and Warmblood type (16.0%, n=120/748).

Table 7: The mode responses and percentage frequency of responses to questions on information about the main horse in the care of the participants from an online survey of horse owners and carers' opinions and experiences of purchase and healthcare decisions, and euthanasia of their horse

Information about the horse	Mode response	Percentage of participants selecting this response (number of participants/total number of responses)
Sex	Gelding	62.0% (464/749)
Breed	Sports horse type	32.2% (241/748)
Role of the horse	Competition and leisure	55.5% (415/748)
Activity carried out with the horse	Hacking	25.3% (188/744)

The majority of participants took day to day responsibility for the care of their horse (78.2% n=585/748); 14% (n=105/748) relied on livery yard staff. The median amount actually spent on veterinary treatment was £300.00 (range £0-15,000), and participants were willing to spend on veterinary treatment was £1,500.00 (range £0-300,000).

*Table 8: The median annual spending by participants on each horse, from an online survey of horse owners and carers' opinions and experiences of purchase and healthcare decisions, and euthanasia of their horse. (*number of participants that stated a monetary value.)*

	Participant response to the estimated amount spent on their horse in the last 12 months (n=734 responses)	Participant response to the estimated amount spent on veterinary treatment in last 12 months (n=736 responses)	Participant response to the amount they are willing to spend on veterinary treatment (n=421* responses)
Median amount (£)	4000.00	300.00	15,000.00
Range (£)	0-70,000	0-15,000	0-300,000

In response to Q32 'How much are you willing to spend on veterinary treatment for your horse?' the majority of participants (58.1%, n=421/724) stated a monetary value; 41.9% of participants instead gave a written response. These were analysed and grouped into the following categories: As much as required, unlimited within reason, dependent on prognosis, unsure, up to the insurance limit, what they are able to afford, and as little as possible. The most frequent written responses were 'as much as required' (67.2% n=202/303), and 'unsure' (9.24%, n=28/303). Of participants that stated they had an unlimited budget for veterinary treatment in response to question 33 ('Please identify along the scale how you budget for your horse in the following areas') (n=370/744), 47.6% (n=176/370) of those participants stated a monetary value when asked how much they were willing to spend on veterinary treatment (question 32). Figure 6 presents the participants' responses about how they budget for their horse for different aspects of horse

ownership and care. The majority of participants did not spend any money on a behaviourist (84.0%, n=612/729) and for all other areas, the majority of participants had a fixed budget for each of the areas

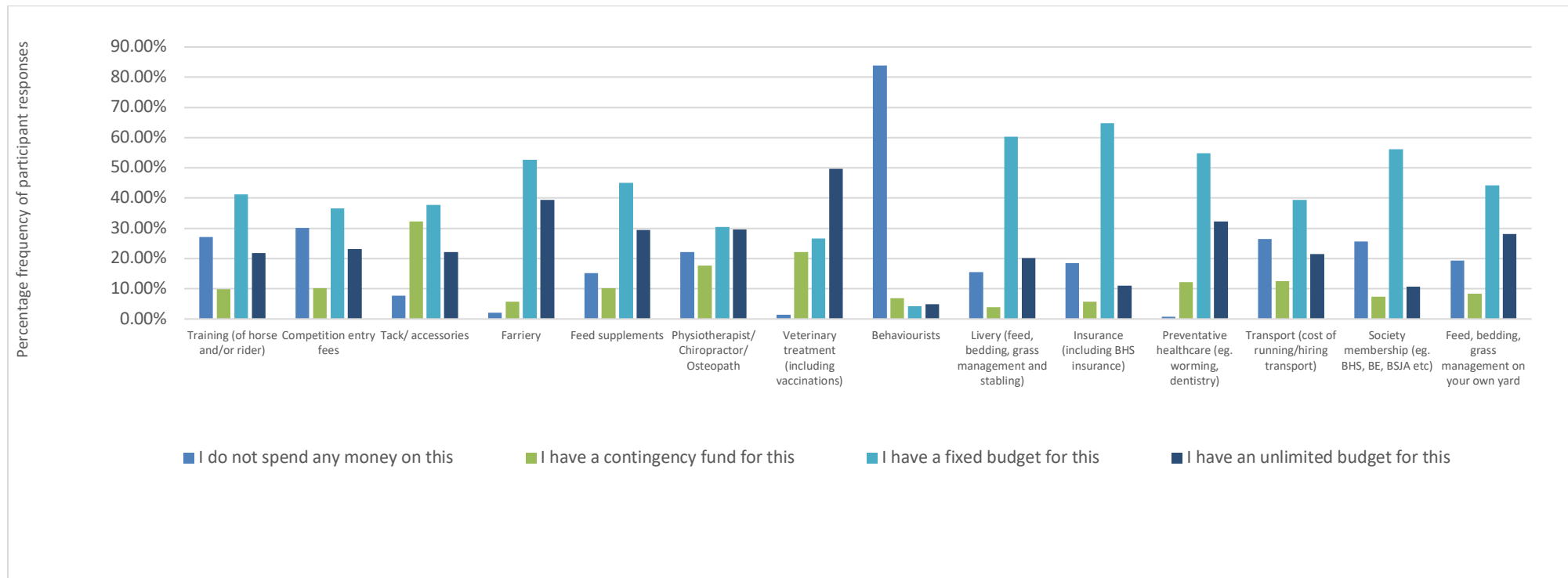


Figure 6: Frequency of responses of participants in answer to how they budget for their horse in different aspects of horse ownership and care. Data from an online survey of horse owners and carers' opinions and experiences of purchase and healthcare decisions, and euthanasia of their horse (n=744)

Information source scenarios:

In this section, participants were asked which information sources they would use for different scenarios. Scenario 1 was based on the loss of body condition by their horse. Of the 696 participants that completed Scenario 1, the most important information sources were: vets (50.6%, n=352/696), their own knowledge (15.5%, n=108/696) and their coach/ trainer (8.91%, n=62/696). Scenario 2 was based on a change in behaviour of their horse, with 644 participants completing the questions regarding the scenario.

Similarly to Scenario 1 the most important information source was the vet (39.9%, n=257/644) followed by a physiotherapist/ chiropractor (26.6%, n=171/644) and their own knowledge (9.01%, n=56/644). Just over a quarter of participants that completed both scenarios answered that the vet was the most important source of information for both loss of condition and change in behaviour (n=168/643).

2.3.2 Interview participant information:

Participant demographics:

All 11 participants in the interviews were female, and had a mean age of 48.2 years (range 31-61 years). Twenty-one interviews were performed across eleven participants. The length of interviews ranged from 17:52 to 51:02 minutes (mean = 28:31 minutes) for the first interviews, and from 19:38 to 52:00 minutes (mean= 30:36) for the second interviews. All participants owned the horses in their care, four were also riders, and two participants were also

trainers. The majority of the participants spent up to two hours a day with their horses (n=5/11), and the mode experience of the participant group was eight (range 3-10). The majority of the participants had no formal equine qualifications (n=7/11), but two had a coaching/ instructing qualification. The mean number of horses owned by the interview participants was 1.5 (range 1-4 horses) and the mean number of horses they had personally purchased was 3.64 (range 2-12 horses).

Horse demographics:

The average age of the main horse in the participants' care was 12.9 years (range 6-27.5); 63.6% (n=7/11) of horses were geldings. The majority of horses were Sport Horse Type (32.2%, n=241/748). There was a large range in ownership lengths (0.5-20 years) with the mean length being 7.55 years. The most frequent role and activity of the main horse in the participants' care were competition work and leisure riding (n=5/11) and hacking (n=4/11).

2.3.4 Pre-interview questionnaire:

The pre-interview online questionnaire asked how frequently participants used different preventive healthcare measures. The majority of participants used pasture management (45.5%, n=5/11) and feed supplements (72.7%, n=8/11) regularly (every 1-2 days). The majority of the participants did not use behaviourists (90.9%, n=10/11), blood tests (72.7%, n=8/11) or body condition scoring (45.5%, n=5/11).

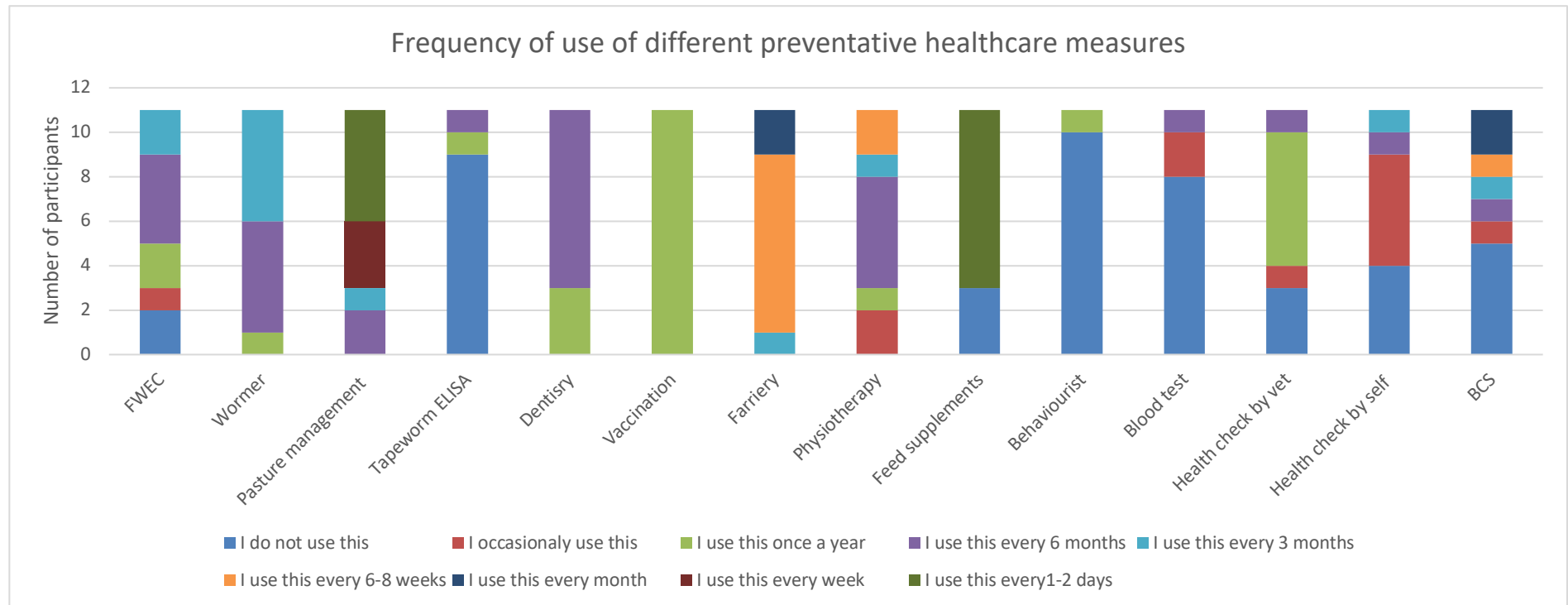


Figure 7: Frequency of responses by 11 participants in answer to how frequently they use different preventative healthcare measures for their horse. Data from an online survey prior to participating in two semi-structured interviews exploring the influence of the horse-human relationship on their experiences of purchasing horses, preventative healthcare, professional intervention and euthanasia, and the factors that influence their decision-making regarding the horses in their care.

When asked about spending, the average total amount spent by participants was £9214.90 (range £324.00 -£14240.00). The greatest expenditures were on livery (£2120.00) and non-routine veterinary treatment (£2080.00) (Figure 8). The total amount spent by all interview participants in each of the areas were as follows: £15,130.00 on preventative healthcare, £18,949.00 on competition costs and £58,070.00 on management costs.

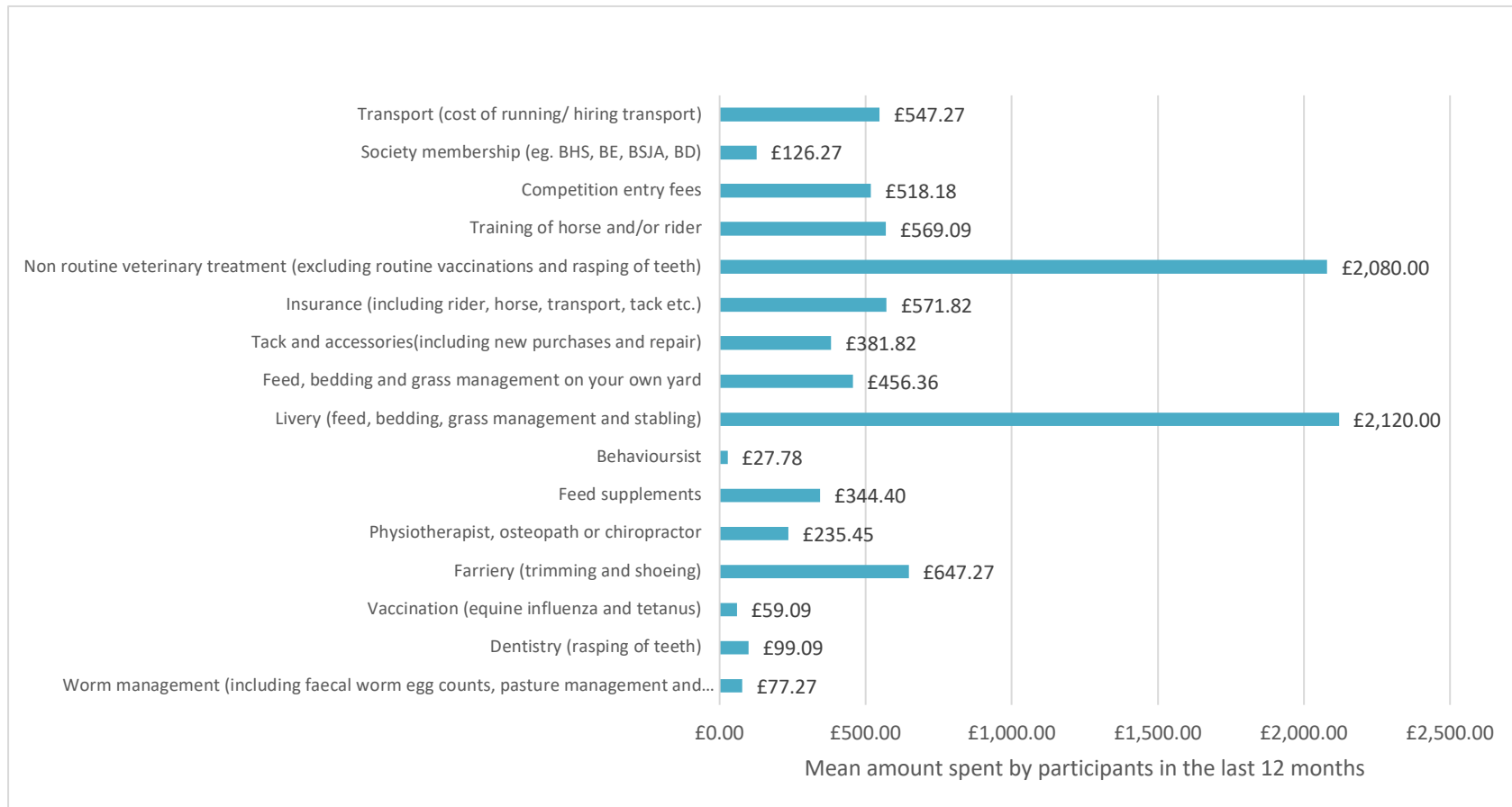


Figure 8: The mean annual spending of 11 participants in different aspects of horse ownership and care during an online survey prior to participating in two semi-structured interviews exploring the influence of the horse-human relationship on their experiences of purchasing horses, preventative healthcare, professional intervention and euthanasia, and the factors that influence their decision-making regarding the horses in their care.

2.3.5 Interview results:

Purchasing decisions:

Thematic analysis of the interview data on purchase decisions identified three key themes: expectations / personal involvement; moral/ethical obligations, and conflict between expectation and reality. The key subthemes and example codes for each theme are described in Tables 9, 10 and 11.

Participants' expectations of, or personal investment into their relationship with their horse and horse ownership was mentioned frequently across the interviews. The subthemes within this area include the use of the horse, the benefits they gained (including physical, psychological and lifestyle) as well as the negative aspects of commitment, and their relationship with the horse. The use of the horse was a prominent area of discussion for many of the participants, particularly the requirements of the horse to perform its desired function. This varied according to their expectations of the horse. Horse owner 62 (Group 5) considered this from the horse's perspective *"if the horse didn't enjoy doing it [its function] then I need to get rid of that horse and find one that did because yes that's why I have them"*. Another considered the impact suitability may have on both themselves and the horse; *"If my horses aren't doing what I want to do with them, for their sake and mine, I will sell them"* (horse owner 22, Group 5). Their expectation if the horse was no longer able to perform its function was not dependent on experience. Horse owner 399 (Group 2), an experienced professional, described how they felt about the most recent horse they purchased *"I mean disappointing and very difficult to have a pony to get Cushings at 9 you know you're normally looking kind of after 10 15 so that was a bit difficult but umm because of not being able to compete him, not having the chance to compete him but that's the, that's life"*

you know that's one of those things. So I've taken it on the fact that I've competed enough in my life so it doesn't really matter". This comment also reflected the personal relationship and commitment they had to the horse.

Relationships with their horses had a particular importance to many participants reflecting their significant personal investment. Many described their horse as a member of the family and there were frequent anthropomorphism of horses 'personalities' and feelings; *"there's a lot more going on between those horse's ears and their soul, their heart than some people would give them credit for"* (Horse owner 62, Group 5), *"he was a nice person and had a lot of need himself, so you know it was perfect"* (Horse owner 399, Group2). The vast majority of participants regarded their horses as a family member, irrespective of their perception of horses as working animals. One participant described the companionship role her horse provided, *"For me the riding was probably about 30% of my relationship with her and the other 70 was just hanging out and you know just being with her and spending time with her", "I don't have children so to me it's like having a child, it's that kind of intense, I feel like it's that kind of intense relationship, so she's very dependent on me obviously"* (Horse owner 481, Group 3).

The lifestyle involved with owning a horse was frequently discussed by the participants, in particularly the benefits it provided to them; *"it's great to be outdoors that has sort of knock on good psychological effects"* (Horse owner 62, Group 5). For some participants, a sudden change in the lifestyle (e.g. after the loss of another horse) was a motivation behind the purchase of a horse; *"OMG I can't live without a horse"* and *"when this one passes over I'll probably have another one to keep me on the straight and narrow"* (Horse owner 635 and 399, Group 4 and 2).

The moral or ethical obligations participants' felt associated with the ownership of a horse frequently occurred across all of the interviews. This theme covered a range of obligations, and key sub-themes were the participants' commitments in terms of time, finance, and to the horse's welfare. These differed from the personal investment as they were often negative or considered as obligations or physical requirements that they had to provide. External or social pressures were included in this category as these will impact on people's judgement about their moral obligations. It was clear that many interviewees invested significant amounts of time and money in their horse, and sometimes this was justified by describing the benefits they had from being a horse owner; *"it keeps me very poor. It keeps me out of the asylum. You know so I get up at about usually five thirty quarter to six, go to the yard do the pony. I either ride early before I go, then I go to do a few hours of work... and at the end of the day I go back."* (Horse owner 399, Group 2). Similar to this participant, most participants had an understanding and appreciation of the financial responsibility that comes with owning a horse; *"it's what it is, if you have a horse it's not cheap to keep them is it"* (Horse owner 635, Group 4). This was not the case for some of the less experienced participants, one participant in response to what negatives they felt about being a horse owner described both the financial costs and the external pressures to purchase including marketing and peer pressures; *"I had no idea, absolutely no idea of the financial cost that you know you end up with and it's very easy to be sucked in there's literally every day I am amazed I can open the internet and there is some other thing that we don't have and others do you know somebody marketing things that you know like the new infrared ceramic rugs and boots and it's just endless and I cannot I can't believe you know as a, as a group of people horse owners can spend you know unbelievable amounts of money"* (Horse owner 52, Group 3). The participant

also spoke about the psychological impact, in particularly the guilt felt, due to the financial commitments required by the horse; *"I have an ingrained, what's the word, regret in a way that I, not that we regret it but I feel bad that we ended up in this financial situation"*. Another participant spoke about the costs required to care for one of their horses, and although a greater expense than expected, the welfare and quality of life of the horse was more important than the financial contribution required; *"[horse name] was very expensive compared to [horse name]... as a first horse she ended up being quite an expensive horse... I was always willing to pay it and whatever I could have done to make her life easier"* (Horse owner 481, Group 3).

The conflict between expectation and reality was an important theme identified within the interviews, and of particular importance was the mismatching of the partnership between the participant and their horse. Subthemes within this were concerns about the horse's suitability, safety and whether correct decisions had been made. This theme included sub-themes which reflected issues around decision-making, including contradictory statements and guilt. Although most participants said they were happy with their most recent horse purchased, previous experiences of unsuitable horses were discussed by all of the participants. One experienced participant who currently cares for four horses and has had twelve others previously stated *"to be honest I'm not sure I would purchase him again... mostly happy but not 100%. I think that perhaps that I'm not good enough to fulfil his potential"* (Horse owner 595, Group 1).

The blame for the incompatibility was removed from the horse by this participant. Another participant justified the incompatibility of the partnership with their horse was beyond the horse's inability to function only as a dressage horse; *"so difficult to explain, it's just not the horse for me. I can't seem to gel with it, it's got one or two sort of quirky straights which I don't normally mind,*

but I just, this horse doesn't want to just be a dressage horse, it needs to do something else as well, I think it needs to go and event. So it's not really the horse for me so, but it will be a good horse for somebody, it loves to jump which I don't want to do" (Horse owner 22, Group 5).

Table 9: The theme of expectations and personal investment identified from in-depth interviews exploring purchasing and preventative healthcare decisions by horse owners (n=11).

Sub-themes:	Use of the horse	Physical attributes of the horse	Psychological and physical wellbeing	Relationship/ companionship	Lifestyle/ culture	Reward	Perception of experience
Example codes	Sport	Temperament	Stress	Member of the family	Culture that spends money	Progression and development	Inexperience
	Pleasure or leisure	Ability	Emotional commitment	Companionship more important than function	Change of lifestyle	Education	Self-belief in ability
	Companionship	Conformation	Exercise/ fitness	Bond/ partnership	Way of life		Overestimation of ability
	Value for worth/ need for function		Good mental wellbeing	Anthropomorphism			

Table 10: The theme of moral/ ethical obligations identified from in-depth interviews exploring purchasing and preventative healthcare decisions by horse owners (n=11).

Sub-themes:	Financial commitment	Time commitment	Welfare commitment	Social pressures	External influences	Personal commitments
Example codes:	Value for money	Routine	Welfare concerns	Peer pressure	Opinions from others are important	Challenge/ project
	Financial naivety	Constant part of life	Duty of care	Poor communication with vet	Judgement from other owners	Sacrifice social life
	Financial concern	Planning required	Fear of injury to horse	Need to be like everyone else	Advice from experienced people	
	Structured budgeting		Investment in health			

Table 11: The theme of conflict between expectation and reality identified from in-depth interviews exploring purchasing and preventative healthcare decisions by horse owners (n=11).

Sub-themes:	Horse suitability/ mismatching	Decisions/ planning	Personal safety	Contradictions	Guilt or regret
Example codes:	No longer suitable for the function	Circumstantial/ unplanned purchase	Fear of danger	Importance of behaviour but not behaviourists	Guilt for feeling stressed
	Unsuitable temperament	Rash decision	Nervous around horse	Horse not a pet but not able to sell it on if no longer suitable	Regret poor decisions
	Mismatched but not the horse's fault	Structure and planned purchase Very specific requirements of horse			Regret injury to horse

Euthanasia decisions:

Using the same thematic analysis method for interview 2, Tables 12,13 and 14 present the data extracted from each of the interviews (n=10) carried out regarding the participants' experiences of euthanasia. Three main themes were identified; the euthanasia decision, the impact of euthanasia and the moral obligations of owning horses.

The actual process of making the decision to euthanise was extensively described within all the interviews, giving rise to several important sub-themes. Key sub-themes include the factors influencing the decision made by participants, aspects involved within the act of euthanasia (method, location, owner presence), and the support required to make a euthanasia decision. Factors that were influential to the euthanasia decisions made by participants included; quality of life, health of the horse, and prognosis. One participant described the difficulty in deciding whether treatment is the best option for the horse; *"If there was something that could be tried but the horse was suffering so much that I felt that it would be unfair to continue you know perhaps if there was only a slim choice of them pulling through umm then I would make that decision to have them put to sleep"* (Horse owner 329, Group 1). This also highlighted the influence the quality of the horse's life and prognosis has when making decisions for the horse. The age of the horse and its temperament were also factors that participants considered within their euthanasia decision. Horse owner 62 (Group 5) discussed the influence of temperament on the timing of the euthanasia decision made *"definitely the temperament of them made a difference to the timing of the decision with these horses, the horse number 3 was an awkward horse to begin with so yes she was put to sleep at a relatively early age, probably as much because of her temperament and the*

difficulties of dealing with her as much as her physical issues". Another participant described the difficulty of making a euthanasia decision for one horse, where they discussed their feelings of guilt and their justifications of the horse's behaviour; "why do I have a right to take away his life just because I think he's going to hurt someone else" and "he was absolutely foul, he was so bad tempered that I was actually worried that he was dangerous not just to people but to other horses as well... I think a horse is not naturally a horrible animal so I think he must seriously be in a lot of pain to be that horrible"

(Horse owner 595, Group 1). This comment also provided an insight into the relationship they had with the horse, and how it may have influenced the decision for euthanasia, but also the psychological impact of the decision.

The relationship that some participants had with their horses was identified as an affecting factor. Horse owner 481 (Group 3) frequently referred to the difficulty they felt when making a euthanasia decision for their horse and how the relationship with the horse influenced their ability to make the decision, the speed the decision was made and timing; *"she was utterly my world. I was absolutely devastated it was like the hardest decision I've ever made in my life", "they [the vets] rang me to say this is now a serious welfare issue and if you can't make the decision we are going to have to make the decision for you, she's just too ill we can't keep her like this you either need to decide if we are operating or you need to put her down" and "I would've stopped them doing it if I had stayed just because I wouldn't you know I didn't want her gone out of my life"*. For this participant the strength of the relationship with their horse meant they were unable to make a decision, which then compromised the welfare and quality of life of the horse. For a more experienced participant, the timing or speed of the decision was important; *"you do need to act fairly*

soon and not draw things out to the detriment to the horse... it's just not fair to them" (Horse owner 672, Group 2).

The importance of support to the participants was identified, with shared decision-making, informed decisions and the relationship and communication that they have with their vet, all important points to consider when making the decision to euthanise. Many of the participants involved their vet in the decision, often for advice or agreement in the decision; *"always is under the advice of the vet, you know always taken with the advice of the vet"* (Horse owner 399, Group 2). It was the inexperienced participants that felt unable to make such a decision for the horse without the advice from the vet and others, that we should consider; *"I needed that, I wasn't really in a position to say without anybody's help to say ok he's had enough lets end it, I needed the advice and support"* and *"I did ring her [yard owner] and say I don't know what to say to them [the vets]"* (Horse owners 52 and 481, Group 3).

The impact of euthanasia on participants was identified across all interviews. Several important areas were identified as sub-themes; the psychological impact, impact on the relationships and lifestyles of the participants, and the longer term impacts of the decision made. The sense of responsibility participants had for the death of their horse, guilt, regret, personal blame and distress were some of the negative impacts the euthanasia had on the participants. A number of participants frequently referred to the lack of 'choice' when it came to the decision to euthanise. One participant discussed each of the five experiences of euthanasia decisions they have had, of which only one decision was deemed their responsibility; *"I think really the only one where I felt like the decision wasn't taken for me was the one with kissing spine because all the others would have died in a horrible way"* (Horse owner 595, Group 1). The sense of responsibility for death was identified by some

participants; *“you feel a bit like a murderer”, “I felt very guilty, for sort of sentencing her to death”* (Horse owners 22 and 481, Group 5 and 3). The feeling of guilt surrounding euthanasia by horse owner 481 was also identified for other participants. Horse owner 329 (Group 1) discussed the feelings of guilt felt during and after the euthanasia of their horse; *“a little bit of guilt to be honest with you... I got a bit of a guilt trip he would’ve thought he was having an injection”*. For horse owner 595 (Group 1), regret was felt for a euthanasia decisions made; *“the only time I think I really would still regret and wonder if there was anything I could’ve done differently was [horse name], just because you know he was young, fit and healthy”*. Regret was also identified in the context of the timing of the decision; *“I will admit I was a bit fluffy on that one... we faffed around for 7 or 8 days”, “maybe we should’ve done something sooner... I do feel a little regret that maybe we should’ve done something”* (Horse owner 762 and 52, Group 6 and 3). The long-term impact of the decision varied between participants where feelings of acceptance, positive reflection on the time with the horse, and negative associations with the decisions were identified across the interviews. Some participants were still emotional about the decisions they had made, with some getting upset during the interview and others stating; *“now I still get upset about it but it was absolutely the right thing to do”, “you still get emotional thinking back on it”* (Horse owner 481 and 799, Group 3 and 4). More positive feelings were described by horse owner 62 (Group 5) *“yes I don’t dwell on it we had happy times and I remember that”*.

Moral obligations to the horse and as an owner were found across the interviews. Some participants expressed that it was their responsibility as a horse owner, and their duty of care to horse, to make the decision; *“it’s not easy it really isn’t, but you know, when you took them on you knew that”*,

“obviously if you own animals that at some point you know the day is going to come”, “it’s our responsibility as an owner really, you know we are taking that responsibility” (Horse owners 762, 595 and 399, Group 6, 1 and 2 respectively).

Table 12: The theme of the euthanasia decision identified from in-depth interviews exploring the use of professionals and euthanasia decisions by horse owners (n=10).

Sub themes:	Factors affecting decision	Practical aspects of euthanasia	Support
Example codes:	QOL	Pleasant and reassuring environment for horse	Shared decision-making
	Prognosis	Whether owner present or not	Advice/ opinions
	Age	Euthanasia method depends on horse	Informed decision
	Health	Euthanasia method depends on personal opinion	Dependence on others
	Temperament	Method decision by vet	Support/ confirmation once decision made
	Safety	Judgement of other people's choices	Relationship/ communication with vet important
	Time commitments		
	Management commitments		
	Financial commitments		
	Relationship		
	Timing of decision		

Table 13: The theme of the impact of euthanasia identified from in-depth interviews exploring the use of professionals and euthanasia decisions by horse owners (n=10).

Sub-themes:	Psychological impact	Impact on lifestyle and relationships	Long-term impact
Example codes:	Confidence in the decision	Lifestyle Change	Difficult decision
	Justification	Change in routine	Acceptance/ carry on
	Regret/ uncertainty	Less distressing than loss of other pets	Fond memories
	Guilt/ blame	Loss of companion/ family member	Inexperience/ lack of preparation or understanding
	Relief/ comfort		Still get emotional
	Bereavement/ grief		
	Confliction of emotions		
	Devastation/ distress		
	Responsibility		

Table 14: The theme of moral obligations identified from in-depth interviews exploring the use of professionals and euthanasia decisions by horse owners (n=10).

Sub-themes:	To the horse	As an owner
Example codes:	Duty of care to the horse	The responsibility of being an owner
	Selfless	Safety of others
	Maintain welfare	
	Strength/ formation of relationship	

2.4 Discussion:

The purchase and euthanasia interviews both identified a large range of sub-themes relating to these key decisions for horse owners. The main themes in the purchase interviews were: the expectations/ personal investment involved with the ownership of horses, the moral or ethical obligations of horse ownership, and the conflict between expectation and reality. They reflected the many pressures that horse owner's experience when purchasing a horse, and how their personal relationship can be conflicting with or override the functional and financial decisions. The euthanasia interviews also had moral obligations as a main theme, but the other two main themes were around making the decision for euthanasia and the impact of that decision. A number of participants described their horse as a family member, which made purchase and suitability decisions difficult, and amplified the angst and guilt in the euthanasia decisions. The conflict between personal feelings and obligations to the horse's function and welfare were evident in both the purchase and euthanasia interviews.

2.4.1 Methodology – justifications and limitations:

Eleven participants took part in the interview exploring purchase decisions and preventative healthcare, decreasing to ten for the second interview as one owner had had her horse euthanased between the two interview dates and therefore did not wish to continue. There is a large variability between qualitative researchers as to how many interviews are deemed appropriate to reach data saturation. In one study, thematic analysis of 60 interviews identified 36 high frequency codes with 34 (94%) of these identified within the first six interviews, and 35 (97%) within the first 12 (Guest *et al.*, 2006). A

similar study by Hennink *et al.* (2017) found that 91% of codes were identified after interview 9. The order in which interviews were analysed was also assessed to understand any factors that may influence the analysis and hence the point of saturation. The interviews were analysed both in the order they were performed and in a randomised order and it was found that at interview 12, 93% of codes were identified in the actual order and 96% identified in the randomised order, thus eliminating the relevance of the order in which interviews are analysed (Hennink *et al.*, 2017). Hennink and colleagues concluded that nine interviews can be sufficient enough to capture an extensive range of codes, however it's dependent on a range of study parameters as to how much additional data is required to develop a rich understanding of the codes themselves. In this study, there were a range of different owner factors to consider, and six different owner groups were used. Despite this after thematic analysis of the twenty one interviews in our study, it was found that no new codes were identified. It was decided that data saturation was achieved, and therefore the next step was to test findings and theories arising from the interview on a wider sample of the horse owning population.

The aim of the initial survey was to recruit and interview a range of horse owner types to establish an idea of the experiences and opinions of a cross-sectional sample of the current population of horse owners. The method used in this study to identify the different owner types relied on the researcher's subjectivity of different owner types. It was decided that a comparison of experienced professionals compared to inexperienced non-professionals would be beneficial. It was also deemed that owners that believe horses are pets and non-working animals would be an interesting group to compare with those that believe horses are working animals and not pets. Group 1 was chosen to represent the typical/most common responses (Group

1 were owners that gave the mean, mode or median answers to all the Horse-Human relationship questions); it was surprising that only a small number of people gave these responses to all of these questions, which demonstrates the heterogeneity of the population. The final group 6 was chosen to represent the group of horse owners that have unriden companions or retired horses as it was felt that they would have different factors influencing their decisions regarding their horse. The number of potential participants within each group varied greatly, and some participants met the criteria for more than one owner group. There was a noteworthy difference in opinions and the factors affecting the decisions made by inexperienced and experienced owners. The opinions of professionals were not significantly different to the rest of the participants', hence it shouldn't be assumed that all professionals will make the same decisions for their horses. The emotional attachment or perception of the horse as family had an overriding influence on decisions made, irrespective of the function of the horse, the job of the owner and the financial commitments involved. Although the groupings and criteria were selected to provide a range of participant experience and knowledge, it should be assumed that these participants were not a true representation of the owner types within the population. The current study used similar statements to the ones used by Scantlebury *et al.* (2014) to identify owner typologies. In contrast however, Scantlebury *et al.* (2014) used cluster analysis to group their participants. Both strategies for identifying owner typologies used statements surrounding the horse-human relationship. However the groups identified either lacked validity or were not definitive or exclusive as owners were able to belong to more than one category. Therefore the development and reliability testing of a tool for typing participants could help gain an understanding of the types of owners within the equestrian community. There are multiple factors that influence the decisions made by people, and development of a validated tool could help

influence different approaches for professionals to consider when communicating with the horse owning population.

2.4.2 Key findings:

2.4.2.1 Recruitment survey:

Horse-human relationship:

The majority of respondents had personally purchased a horse (92%) with the most frequent role of the horse being for competition and leisure (55.5%).

Over eighty percent of owners considered their horse a pet, and over ninety percent their horse a member of the family. These findings not only support the evolution of the role of the horse in human society from a working animal to that of a companion animal, but can also be paralleled to the findings found within canine research and the relationship humans have with their pets.

Kubinyi *et al.* (2009) found that within their study, 93.3% of participants considered their dog a family member, similar to the qualitative findings of Charles and Davies (2011) where pets were regarded as family members within 193 in-depth interviews.

Over sixty percent of participants had experienced euthanasia of one of their horses. There have been a number studies exploring euthanasia, but more specifically of aged horses (McGowan *et al.*, 2012, McGowan and Ireland, 2016, Cookson, 2017). With only 9% of horses in the UK dying from natural causes (Cookson, 2017), euthanasia decisions and the factors that influence them, is an important area that needs further research. Further exploration into this, along with the decision-making processes involved would be beneficial,

particularly for veterinarians to enable them to understand how best to support and advise during such a difficult decision process.

2.4.2.2 Interviews:

Experience of participants:

The interview participants' experience was varied (range 3-10) which was deemed beneficial to the researcher as it potentially allowed for a range of experiences and motivations to be shared within the interview. The number of horses in each of the participants care was similar to other publications (mode = 1) (Hotchkiss *et al.*, 2007, Slater, 2016). Similarly, the average age and frequency of geldings was similar to the results found in The National Equine Survey (2015), (mean age = 12, geldings = 57%), suggesting the interview participants were representative of the wider population of horse owners.

Horse-human relationship:

The relationship that participants have with their horse was a key sub-theme, with most of the participants referring to the horse as a member of their family and they frequently anthropomorphised the horse during conversations. It's known that a large number of horses are discarded due to unresolvable behavioural conflicts of the horse-human relationship (McClean and Mclean 2008). There is also a significant risk and danger involved with the sport and the horse-human relationship will both influence, and impact on, the frequencies of accidents and injuries (Hogg, 2015). It has been suggested that the horse-rider relationship can be manipulated by personality of both horse and rider (Williams and Tabor, 2017) and the relative success of the partnership shouldn't be solely measured on placings or breeding potential but

by the health, welfare and lifespan of their equine partner (Parkin and Rossdale, 2006). However, what should also be acknowledged is the extreme relationships or levels of attachment that some owners have with their horse, and the influence that may have on the horse's health, welfare and lifespan is important. Horse owner 481 being an example of this; the intense relationship they had with their horse had a negative impact on the horse's welfare due to their inability to make a difficult or critical decision.

Mis-matching:

The mis-matching of abilities, and the use of the horse and its ability to perform its required function, was an important finding throughout the interviews. It's therefore crucial we understand why incompatibility and unsuitability of partnerships occurs, which will be explored further within the final discussion. For some interview participants, the lack of ability or incompatibility was never deemed to be the fault of the horse. This finding was also similar to responses of guide dog owners when the dog performed undesired behaviours (Craigon *et al.*, 2017). It seems although a desired function is often required by humans for both guide dogs and horses, the understanding that they are still animals is still existent, and therefore human error is usually blamed.

Obligations:

The moral or ethical obligations felt by the horse owners included the financial, time, welfare and personal commitments associated with horse ownership. Although the horse is increasingly considered as a companion animal, it has been argued that unlike companion animals in the household, horses do not

strengthen family bonds (Holbrook 2001), Keaveney (2008) found that some participants regretted that the horse is a source of conflict within the family, due to the financial demands and the time spent away from the household. Within the present study, a similar conflict occurred within a participant's household, with significant guilt about the financial burden of the horse on their partner. In contrast, however, the relationship with their child was strengthened through the time spent together caring for the horse. Although it has been found that owners will finance their horse at the sacrifice of holidays, new cars and clothing etc. (Robinson, 1999), the inexperienced participants (Group 3) were unaware of and surprised by the costs surrounding their horse, especially when it came to emergency treatment and care. With regards to treatment or euthanasia decisions, several studies explored the influence of cost on decisions made by owners. Scantlebury *et al.* (2014) investigated colic, and identified that the cost of veterinary treatment influenced the timing of seeking assistance and surgery consent in her qualitative interviews. However when this was explored further in a questionnaire of a larger population, money was not a significant factor. A study by McGowan *et al.* (2012) on euthanasia of aged horses reported that the costs related to medical treatment were significant, although not the most important factor associated with euthanasia decisions. Both Scantlebury and McGowan suggested the need for further investigation into the socio-economics of equine ownership and how it shouldn't be overlooked when making decisions regarding the horse. Findings from this exploratory study also highlighted the significant commitment and finances required when owning horses. There is a potential need for more education or development of information specifically targeting the inexperienced owner. Further exploration of the influence of finance on decisions regarding the horse, the perception of financial contribution within

the industry and what is deemed acceptable within the horse 'culture' may be beneficial.

Shared decision-making:

Shared decision-making has been identified as a favoured way to make decisions in both human and veterinary medicine (Cornell and Kopcha, 2007, Chewning *et al.*, 2012). In the current study, shared decision-making was also important to the majority of participants when making euthanasia decisions. The inability of some participants, particularly those who are less experienced (Group 3), to make a decision for their horse was an extremely important finding. For one participant, the need for assistance in the decision process from others was understandable due to their inexperience, and lack of education and experience surrounding the health and welfare of the horse. However, the most alarming was the participant who was unable to make a decision even under the strict direction of the vet, which impacted on the horse's welfare and quality of life. The intensity and extreme attachment involved in the relationship they had with their horse, to the detriment of the health of the horse is extremely important to understand. Support and education of the owner about the impact they may have on the health and wellbeing of their pets, not just horses, may be important for the welfare of companion animals. The importance of veterinary advice in euthanasia decisions was also identified by McGowan *et al.* (2012), and similarly found in small animal practice (Kerrigan, 2014, Sheridan and Tottey, 2016). The veterinary professions should therefore appreciate the difficulty in making euthanasia decisions for not only horses but other animals for the owner, and how best vets and other professionals can aid in the decision-making process to help both animal and owner.

Quality of life:

QOL has been identified as an important factor for euthanasia in several studies of equids (Ireland *et al.* (2011a), Thiemann *et al.* (2018)). Frequently reported reasons for euthanasia within literature include; old age, dangerous or undesirable temperament, acute or chronic injury or illness or unwanted/abandoned horses (Stull, 2013, McGowan *et al.*, 2012). Interestingly age and temperament were factors considered for both purchase and euthanasia decisions. Frequently studies focus only on critical cases leading to euthanasia, however it would also be beneficial to investigate how many euthanasia cases are due to behavioural factors.

Emotional impact:

Grief associated with the loss of the animal was an expected key finding within the interviews. However the grief associated with the responsibility of death was also identified, and may be an important factor affecting decision-making. Responsibility grief is unique to pet death and has the following characteristics; direct responsibility for the request of intentional death of another living being, a period of anticipatory death prior to the event, feelings of helplessness over the illness, review of subjective QOL indicators used in the informed decision-making process, and internal doubt (Dawson, 2007). Terminology like 'murderer' and 'death sentence' are very extreme examples of the psychological impact euthanasia decisions had on the participants, irrespective of their experience. These highlighted how much responsibility grief impacted on these participants during their experiences of euthanasia.

Another way that responsibility grief was shown, was how owners described their choices before making a euthanasia decision. The lack of 'choice' when justifying the decision for euthanasia, could be considered as the abdication of responsibility for the decision made. The perception of having no choice or options, removes the responsibility of the decision from the owner. Hence the owner is then able to avoid feelings associated with responsibility grief. Horse owner 595 is an interesting example of this as they felt an alternative was available for only one of the five horses she'd had euthanased. In the best practice guidelines for the euthanasia of horses on humane grounds, of over seventy commonly encountered conditions (British Equine Veterinary Association, 2009), only a fifth ($n=16/74$) of these conditions had immediate destruction as a reasonable and customary option. Of the four experiences deemed by participant 595, where the decision was made for them or 'no choice' other than to euthanise, only one had a condition listed on the BEVA guidelines, where immediate destruction was deemed most appropriate (Hindlimb paralysis). Numerous papers along with this study show the range of factors that can affect the decision for euthanasia. The 'lack of choice' these participants felt may be a personal reflection on what they, as an owner, were able to do. This highlights the importance of understanding not only what the owner wants for their horse, but also what they are actually able to provide for their horse in regards to treatment, management and care. It should also be appreciated that the justification of the euthanasia decision, like the participants' lack of choice and abdication of responsibility, may be a coping mechanism used by the owner to relieve the guilt or judgement they may feel when talking about the decision that was made.

2.4.3 Key outcomes:

- Findings from this study can be used as evidence for the development of a guide on the financial and time commitments involved with the ownership of horses.
- Key factors that were important within the horse-human relationship were identified for both euthanasia and purchase decisions. These included: owner experience, the bond/attachment, and the suitability of horse and owner/rider and how they match together. These should be considered as key factors in the development of an owner typing tool and a partnership matching tool prior to purchase.
- Key factors that were identified for euthanasia decisions included; the moral and ethical obligations the owners had to their horse, quality of life and responsibility grief. These should be considered and appreciated by equine veterinarians with how best to support owners when making such decisions for their horses.

2.5 Conclusion:

This study has highlighted the importance of the horse as a pet and family member, irrespective of owners' experience or requirements. The use of in-depth interviews allowed for further exploration of the emotional connection some horse owners had with their animals, and how this influenced the decisions they made. As a result, themes of expectation and obligation, as well as the conflict between them, were evident. Additionally, the practical and personal aspects of making euthanasia decisions, and the need for support were analogous across the range of owner types and experiences interviewed. This should be considered by industry professionals (such as vets and welfare charities) when developing resources or supporting owners through difficult decisions such as these. This was just a small snapshot of the opinions and experiences of owners within the equestrian community. Important elements that surround the decisions made on behalf of horses emerged from the in-depth interviews, which should now be further explored within a larger population of the horse owning community.

Chapter 3: Decision-making during key events in a horse's lifetime.

3.1 Background:

Qualitative research has been considered an essential precursor to quantitative studies, helping to define hypotheses requiring further investigation and the measurements essential to address them (Christley and Perkins, 2010). For this reason, themes and ideas identified within the qualitative interviews described previously, will be tested via an online questionnaire; a quantitative research tool to explore the ideas identified on a larger population of horse owners.

Questionnaires have been used frequently by researchers to explore various aspects of the equestrian industry, particularly within veterinary medicine (Hotchkiss *et al.*, 2007, Allison *et al.*, 2011, Ireland *et al.*, 2011b, Thompson *et al.*, 2017). Online surveys or questionnaires have been deemed as a research tool and not a study type (Dean, 2015), efficient for data collection and management (Kwak and Radler, 2002).

The scoping review identified a diverse range of research areas and highlighted gaps in the research surrounding the horse-human relationship. As discussed in the introduction to the current research, decision-making on behalf of animals in their care is an important aspect of pet ownership. Further investigation into the decision-making involved with the ownership of horses, was performed within the semi-structured interviews, with several types of horse owner including professionals, inexperienced owners and owners of non-ridden companions. This final study was designed to test some of themes and ideas identified throughout the interviews and generate evidence on

factors important to the horse-human relationship and decision-making in a wider population of horse owners.

3.1.1 Aims and objectives:

The aim of this study was to explore the influence of the horse-human relationship on the decisions made by horse owners. The following research questions were identified from the analysis of the semi-structured interviews with 11 owners;

- Is there a mismatch of perception and reality of horse ownership?
- Does an owner's previous experience with horses have an influence on decision-making, emotional impact and moral dilemmas involved with the euthanasia of a horse?

3.2 Materials and Methods:

3.2.1 Study population:

The target population was all types of horse owners/ carers who had owned or cared for horses, and had previous experience with purchasing or euthanasia of horses. The survey was distributed using online social media groups, media outlets and snowball sampling.

3.2.2. Questionnaire development:

The questionnaire was divided into the following sections;

1. Introduction
2. Participant consent
3. Participant demographics
4. Purchase experience and decisions – pre purchase and post purchase
5. Euthanasia experience and decisions
6. Thank you

A mix of open and closed questions was used in a range of different formats (Appendix 9). As the study was open to participants that had experienced of purchasing or euthanasia of a horse, question logic was used to direct the participants to questions that were appropriate to their experiences. The schedule was developed in Microsoft word before being transferred into Online surveys (Jisc).

Pilot questionnaire:

A questionnaire schedule was piloted by three members of veterinary staff at The University of Nottingham's School of Veterinary Medicine and Science, four horse owners and members of staff at The Horse Trust, who provided feedback and comments including the length of time taken to complete the questionnaire. Changes to the schedule and the final schedule are presented in Appendix 10 and 11.

3.2.3 Survey Dissemination:

The survey was disseminated via social media and email using the same snowball sampling method used for interview recruitment (Chapter 2). The survey was open for four weeks during July 2018 and the link was shared weekly.

3.2.4 Data collection and analysis:

Data was collected, stored and organised into a Microsoft excel spreadsheet and stored in a password protected file. A summary of participant progress through the survey and the number of participants that dropped out at each section is portrayed in Figure 9. A total of 495 participants completing the survey. Descriptive analysis was performed on the data, which included; mean, median and range for continuous data and the percentage frequencies and mode for nominal data. Open text was analysed and grouped into relevant themes and areas.

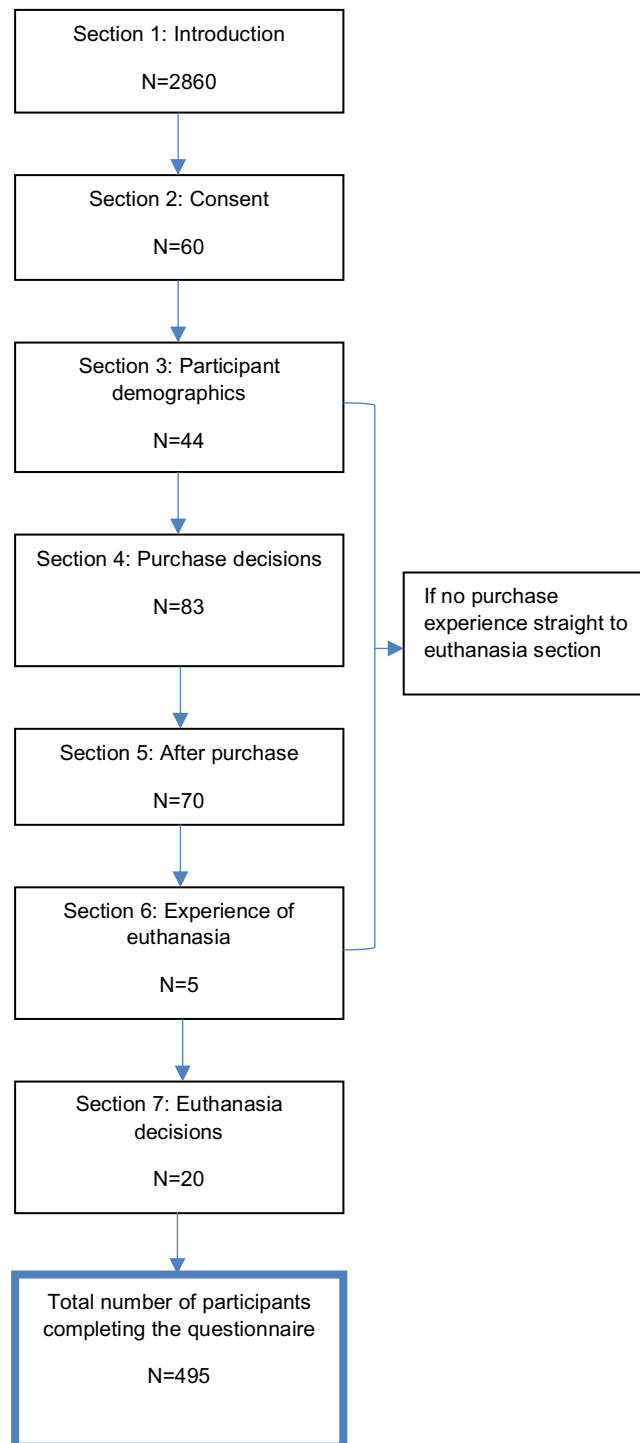


Figure 9: A flow diagram demonstrating the progression of participants through the different sections of an online survey exploring decision-making by owners or carers of horses during key events within a horse's lifetime. A total of 3637 started the survey. The number of those who dropped out at each stage is shown.

3.3 Results

Participant demographics:

The majority of participants were female (97.0%, n= 478/493), with a median age of 46 years (range = 18-71), with approximately half being 46 years or younger (51.3%, n=273/462). Over ninety percent of participants were from the UK and Ireland (n=451/493), and responses from other countries included; Europe (non UK), USA, Australia, New Zealand, Canada and Guernsey. Participants self-ranked their confidence 0-10 (lowest to highest) in their ability to provide day-to-day management and care for a horse (see Figure 10), with a mode response of 10 (n=232/494, 47.0%).

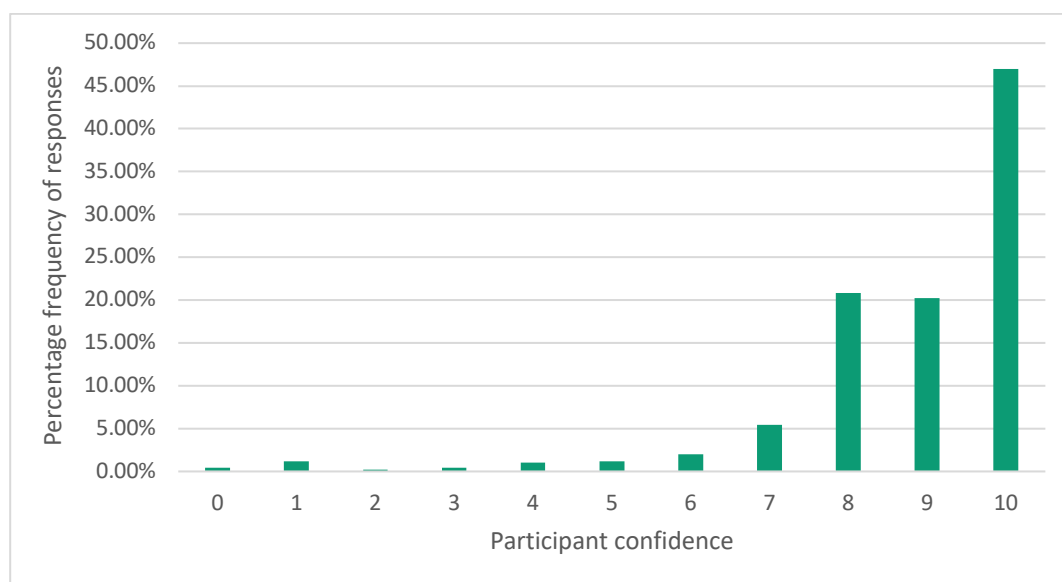


Figure 10: A bar chart demonstrating the confidence of participants in their ability to provide day-to-day management and care for horses on a 0-10 scale. Data from an online survey of horse owners exploring decision-making during key events of a horse's lifetime (n=495).

The majority of participants spent between 2 and 3 hours each day on weekdays with their horse and more at weekends (42.9%, n=212/494). Over forty percent (n=215/489) of participants managed their horse on DIY at their

own premises, with the next most frequent management practice being DIY livery (35.6%, n=174/489). Advice was sought on a regular basis most frequently from the farrier (90.5% of participants, n=445/492), followed by the vet (76.6%, n=377/492) and their trainer/ coach (68.1%, n=335/492). The mean number of horses that the participants had loaned, leased, rescued or had sole responsibility for in the last 5 years was 6.2 horses (range 0 to 250). The large majority of participants had purchased a horse before (97.4%, n=479/492).

Purchase decisions:

The median number of horses purchased by the participants was four (range 1-200) and the most recent purchase by the participants was most frequently in 2017 (range 1986-2018). The majority of participants were very confident in deciding what type of horse to view (58.9%, n=281/478), trying the horse and deciding if the horse was suitable (52.3%, n=249/476), the process of buying the horse and organising vettings/ further tests (62.4%, n=297/476) and if the horse was being sold at an appropriate value (43.4%, n=207/477) (see Figure 11).

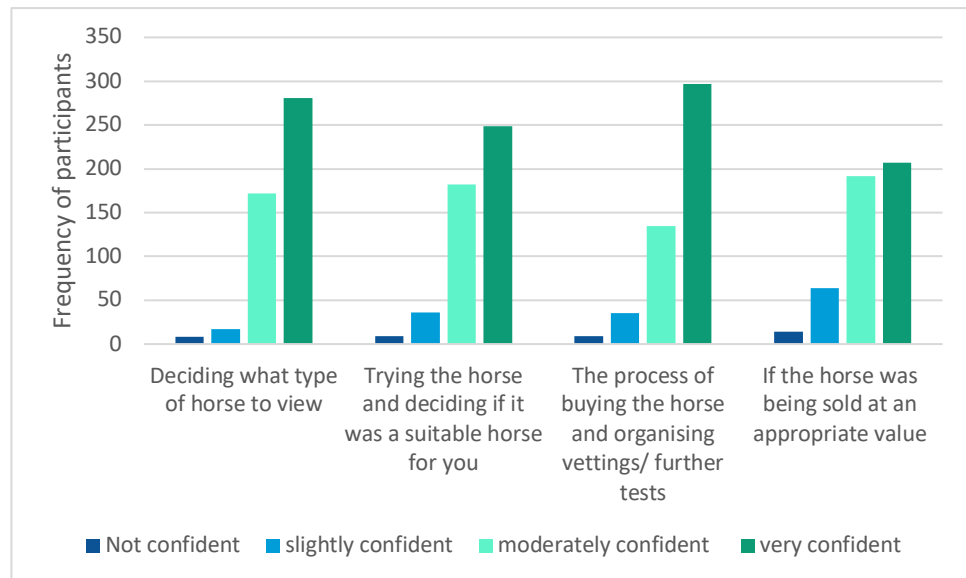


Figure 11: A bar chart demonstrating the confidence of participants during aspects of the decision to purchase a horse from an online survey of horse owners exploring decision-making during key events of a horse's lifetime (n=478)

The majority of participants did not seek any advice when deciding what type of horse to view (n=188/479), or if the horse was being sold at an appropriate value (n=239/479) (Figure 12). Advice from the vet was mostly sought for the process of buying the horse and organising the vetting/ further tests (n=202/479). Friends/ family were the most frequent advice sought when trying the horse and deciding if it was suitable (n=197/479) (Figure 12).

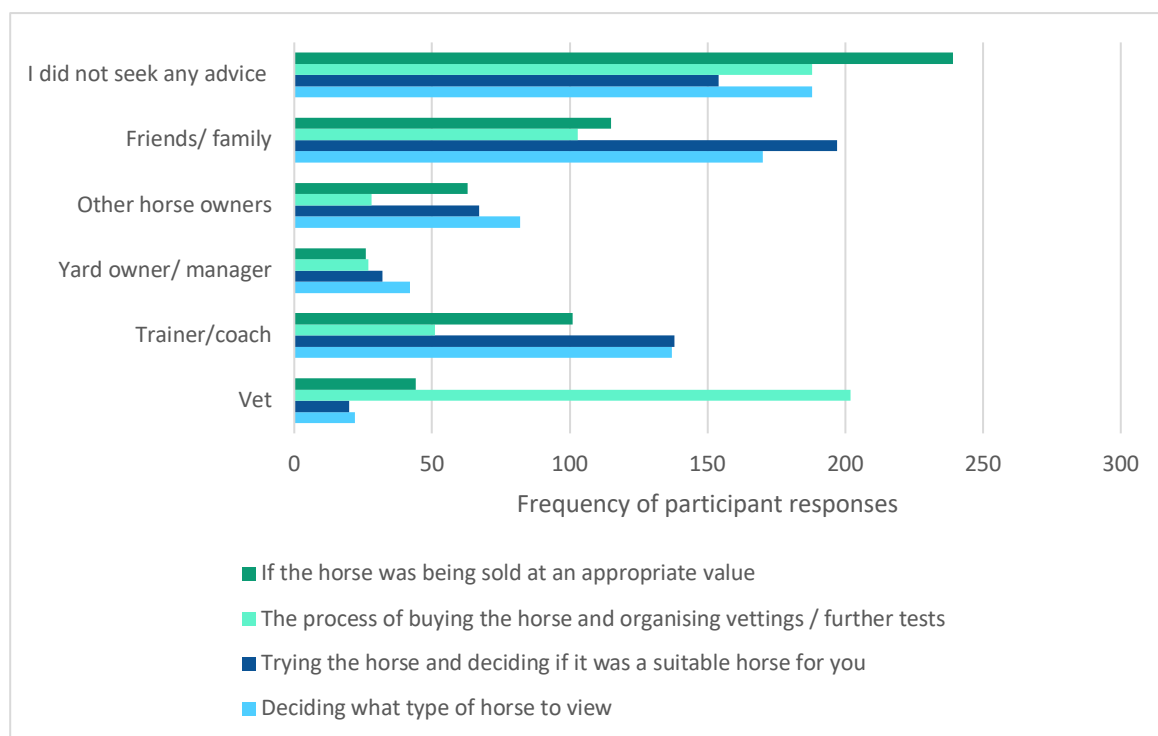


Figure 12: A bar chart to show the frequency of responses of the advice seeking behaviour of participants from an online survey exploring decision-making during key events within a horse's lifetime (n=479).

Over seventy five percent of participants had a plan for how long they were going to care for the horse purchased (n=370/481), with 83.2% (n=308/370) of these planning to care for the horse for its lifetime. Fifty seven percent of participants had a plan in place for when they had to make a euthanasia decision for their horse regardless of the circumstances (n=276/481). Just under a quarter of the participants were aware they may have to make an end of life decision but didn't want to think about making a plan (22.0%, n=106/481). Eighty five percent of participants were happy and would purchase the horse again (n=404/476) and 14.1% (n=67/476) would not purchase their horse again irrespective of their happiness.

Function of the horse:

Participants were asked why they purchased their current horse and about its current function to compare expectations with reality. The most frequent response was for leisure/ hobby purposes (n= 280/481, n=337/481 respectively) for both questions, followed by companionship (n=206/481, n=332/481 respectively) (Figure 13).

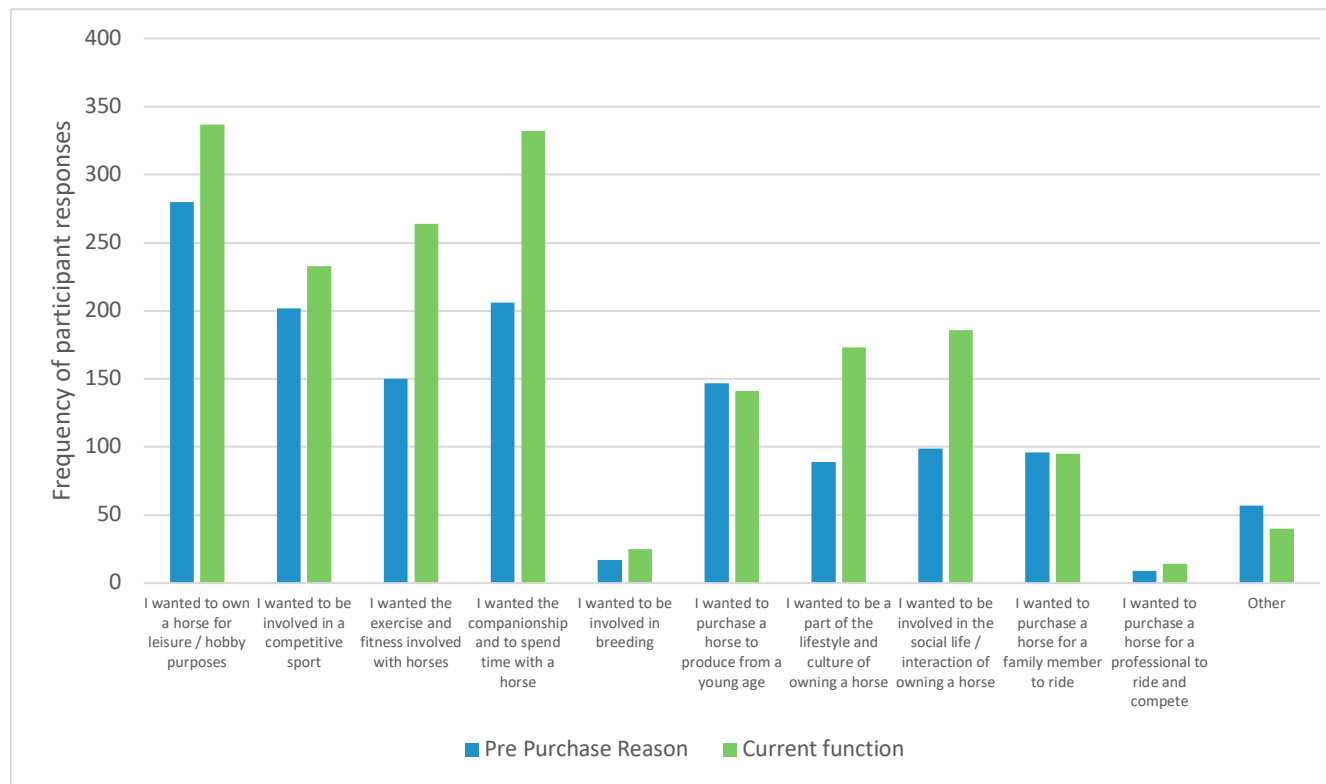


Figure 13: A bar chart to show the reasons for the participants' most recent horse purchase compared with the function it currently provides, from an online survey exploring decision-making during key events within a horse's lifetime (n=481).

Requirements of the horse:

The requirements that the participants deemed the very important when looking for a horse to purchase were temperament when ridden (67.8%, n=326/481), temperament when handled (70.5%, n=339/481) and conformation (43.2%, n=208/481) (Figure 14). The requirements/ characteristics that were not important to the participants were knowledge of the previous owner (55.3%, n=266/481), the experience of the horse (42.0%, 202/481) and the breed/ bloodlines of the horse (34.3%, n=165/481).

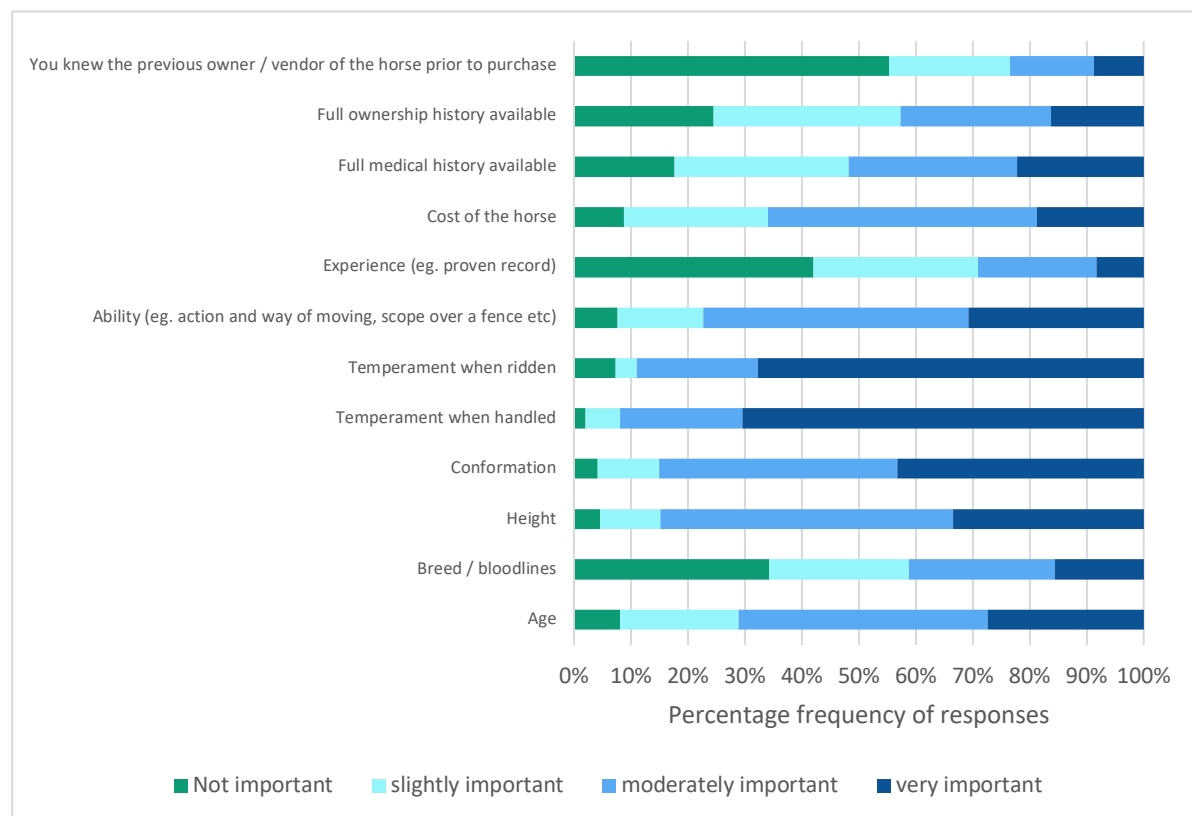


Figure 14: A percentage frequency bar chart of how important several requirements/ characteristics are to participants when looking for a new horse to purchase, from an online survey exploring decision-making during key events within a horse's lifetime (n=481).

When asked how the horse purchased met their expectations, the majority of participants stated that the horse purchased fully met the requirements or original plans they had. The factors that the participants most frequently didn't

consider prior to purchase were knowledge of the previous owner/ vendor of the horse, full ownership and medical history availability and breed or bloodlines of the horse (Figure 15 and 16).

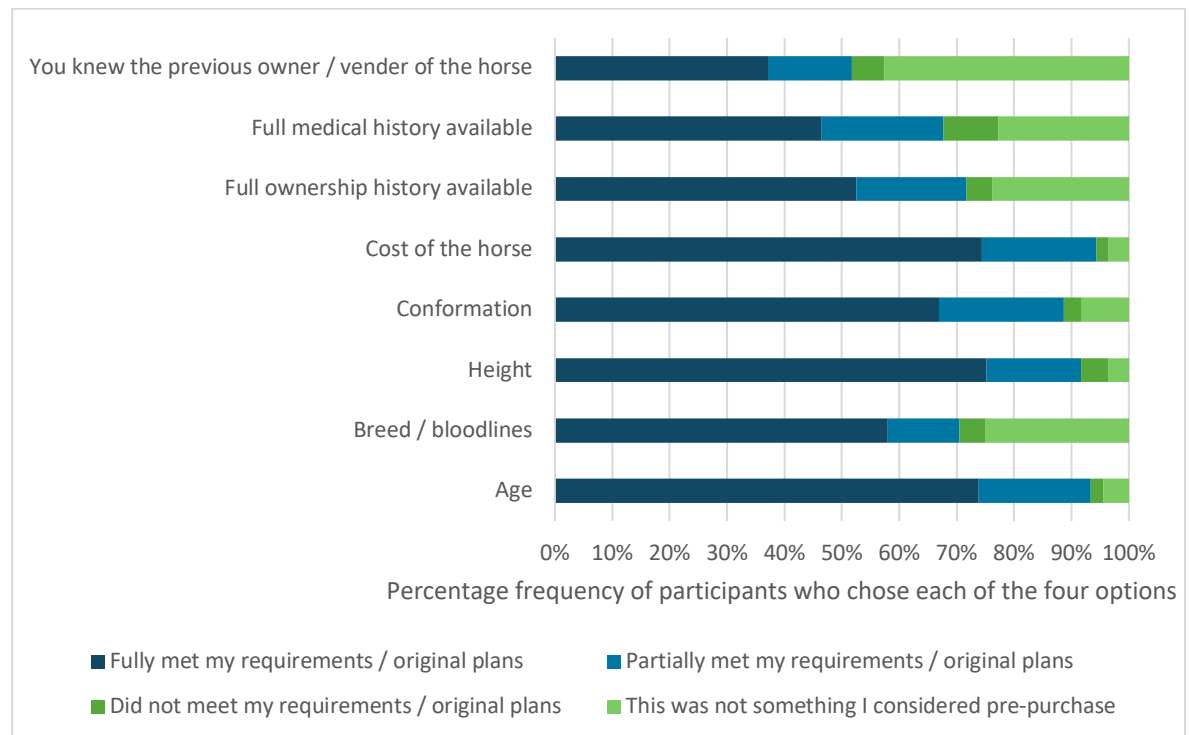


Figure 15: A percentage frequency bar chart of how well the horse purchased met the participant's requirements from an online survey exploring decision-making during key events within a horse's lifetime (n=481).

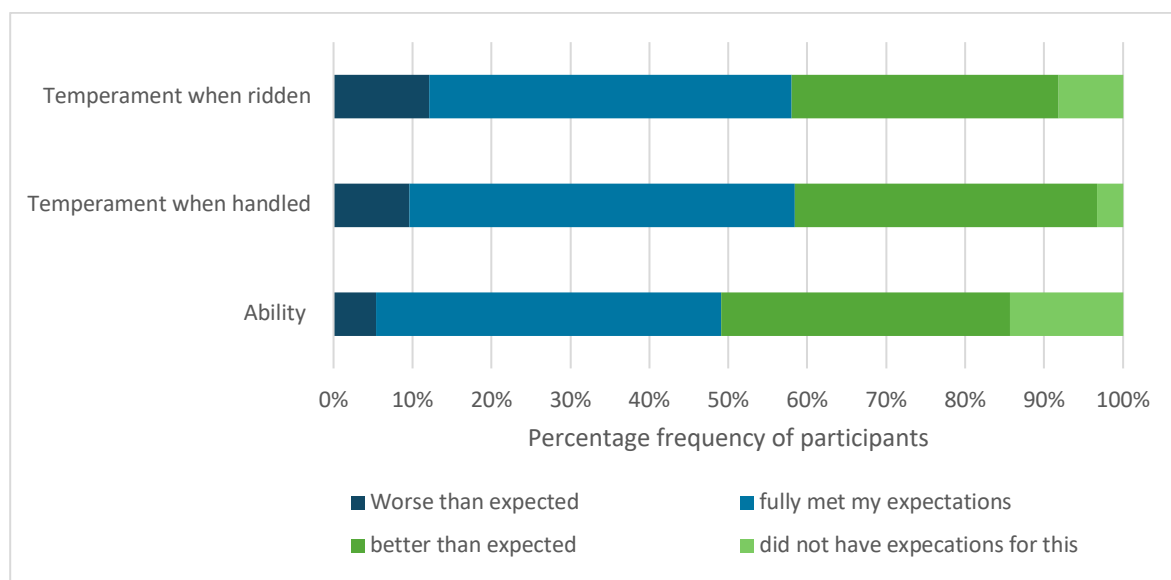


Figure 16: A percentage frequency bar chart of how well the horse purchased met the participant's expectations, from an online survey exploring decision-making during key events within a horse's lifetime (n=481).

The responses to several questions regarding the expectations and realities of the participants' most recent purchase of a horse has been presented for participants who ranked themselves a 10 and those who ranked themselves a 5 or below regarding their confidence (Table 15). Of the participants with purchasing experience, 226 rank themselves a 10/10 in regards to their confidence in providing management and care to horses, and only 20 participants ranked themselves a five or less. The ratio of participants wanting to own a horse for leisure or hobby purposes was similar for both groups. One in four participants with a confidence of 5 or less did not seek any advice regarding the suitability of the horse they tried, and 35% (n=7/20) of these participants were very confident in deciding if the horse was suitable. Around $\frac{3}{4}$ of the participants with a confidence of 10 were very confident for both deciding what horse to view and deciding if a horse was suitable. In comparison to those with a confidence of 10, there were more participants with a confidence of 5 or less that felt the horse's temperament when handled and ridden was very important. In contrast there were more participants with

confidence of 10 that felt conformation was very important, compared to the 5 or less group.

Table 15: A comparison table of responses by two groups of participants with different confidence and their responses to questions on the expectations and realities of their most recently purchased horse. Data from an online survey exploring decision-making during key events within a horse's lifetime.

	Confidence providing day-to-day management and care	
	10	5 or less
Number of participants	226	20
% of participants wanting to own a horse for leisure/ hobby purposes	49.1%	50.0%
% of participants wanting to be involved in competitive sport	50.9%	25.0%
% of participants wanting to be part of the lifestyle and culture of owning a horse	16.4%	15.0%
% of participants wanting the companionship and to spend time with a horse	38.9%	20.0%
% of participants wanting to purchase a horse for a family member to ride	2.7%	35.0%
% of participants where conformation of the horse very important	53.5%	35.0%
% of participants where the temperament of the horse when handled is very important	68.1%	80.0%
% of participants where the temperament of the horse when ridden is very important	65.5%	75.0%
% of participants very confident deciding what horse to view	77.0%	50.0%
% of participants very confident trying the horse and deciding if it was suitable	73.4%	35.0%
% of participants who did not seek any advice when deciding what horse to view	50.4%	35.0%
% of participants who did not seek any advice when trying the horse and deciding if it was suitable	38.0%	25.0%
median rank of how well tparticipants' think they match their horse's ability	9 range (2-10)	8 range (2-10)

Considerations:

When participants were asked about what were their considerations at purchase, the most frequent was the ability of the horse to carry out its function (76.9%, n=370/481), followed by financial commitments (64.0%, n=308/481) and time commitments (53.6%, n=258/481).

When asked what they had considered pre-purchase about financial and time commitments, and horses' ability to carry out its function, 7% of participants had not considered any of these (n=36/481). The majority of participants had planned for both time and financial commitments (see Figure 17 and 18).

Regarding the horse's ability to carry out its desired function, the majority of participants had thought about the risk of the horse developing a future problem but did not have a plan for this (44.1%, n=163/370) and most had a plan for how long the horse would be able to work at its desired level/ function (48.1%, n=178/370) (Figure 19).

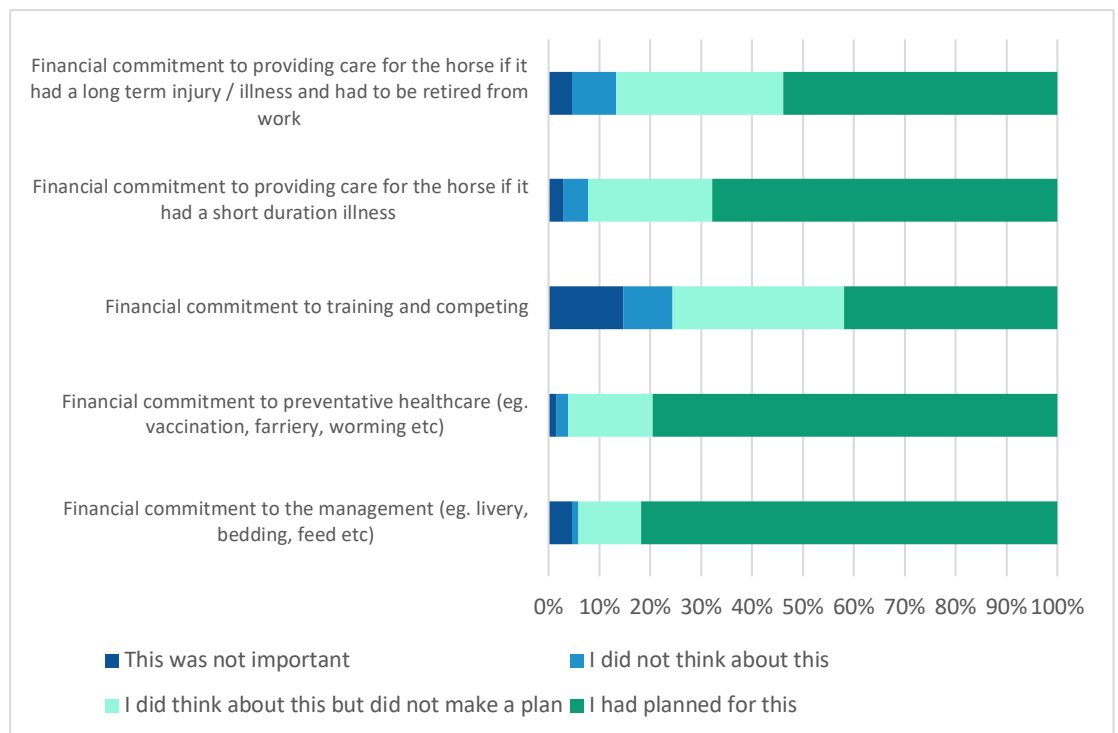


Figure 17: A percentage frequency bar chart of what financial commitments were considered by participants prior to purchasing their horse from an online survey exploring decision-making during key events within a horse's lifetime (n=308).

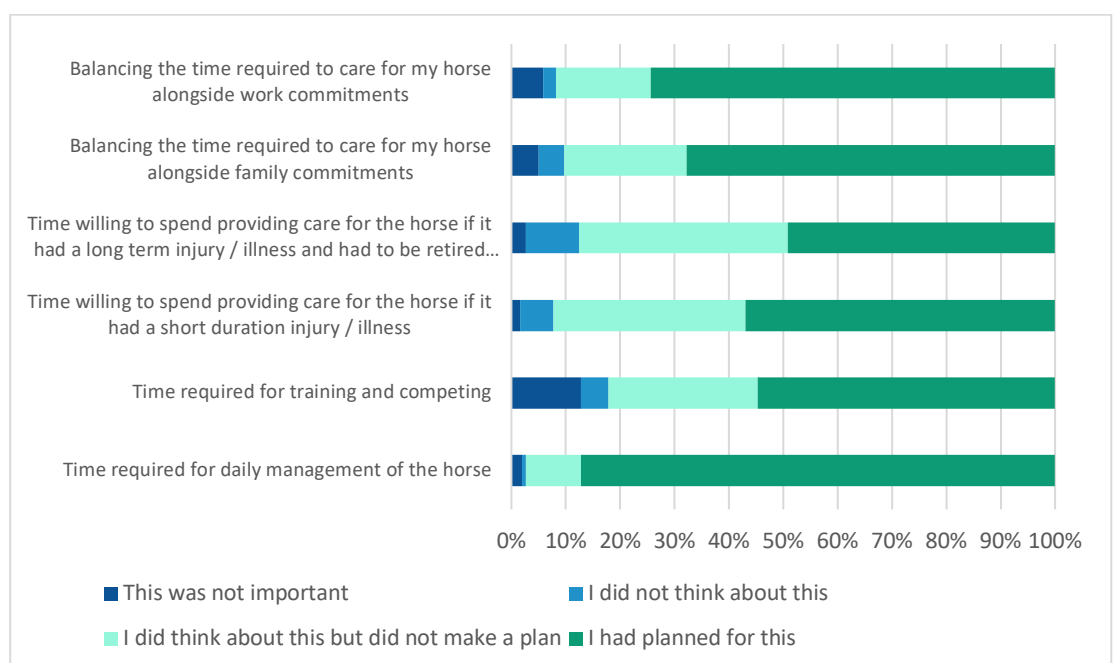


Figure 18: A percentage frequency bar chart of what time commitments were considered by participants prior to purchasing their horse. Data from an online survey exploring decision-making during key events within a horse's lifetime (n=258).

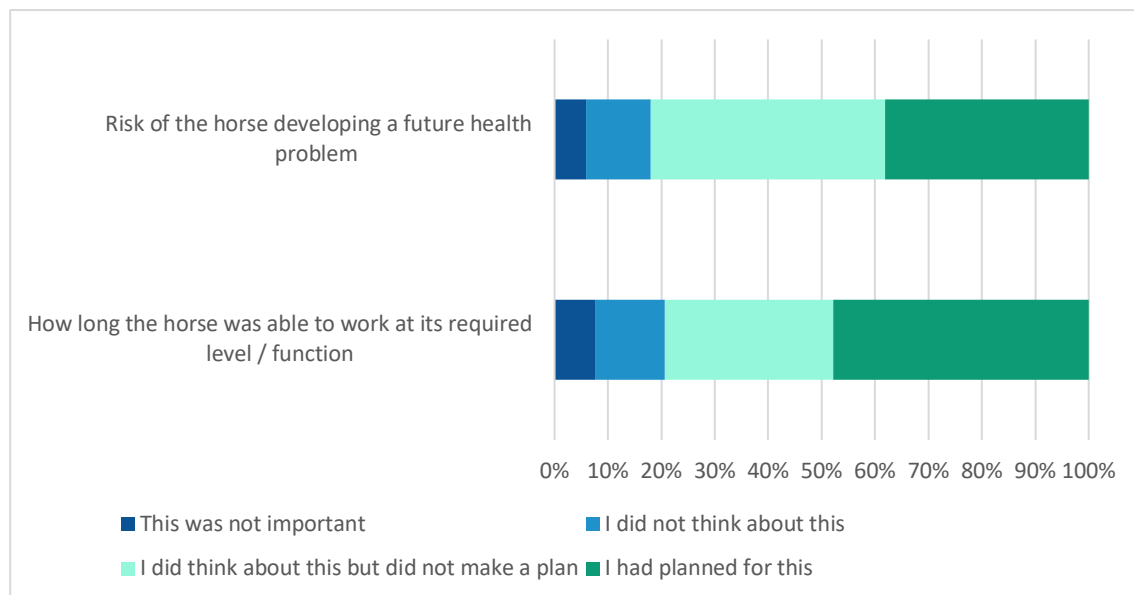


Figure 19: A percentage frequency bar chart of participant considerations regarding the ability of the horse to carry out its function. Data from an online survey exploring decision-making during key events within a horse's lifetime (n=370).

When asked about the reality of their commitments compared to their expectations, the majority of the participants stated the reality was as expected (Figure 20). For the financial commitment to the management of the horse, financial commitment to preventative healthcare and balancing the time required by the horse alongside family commitments, the second most frequent answer by participants was more than expected (n= 39/481, n=32/481 and n=40/478 respectively).

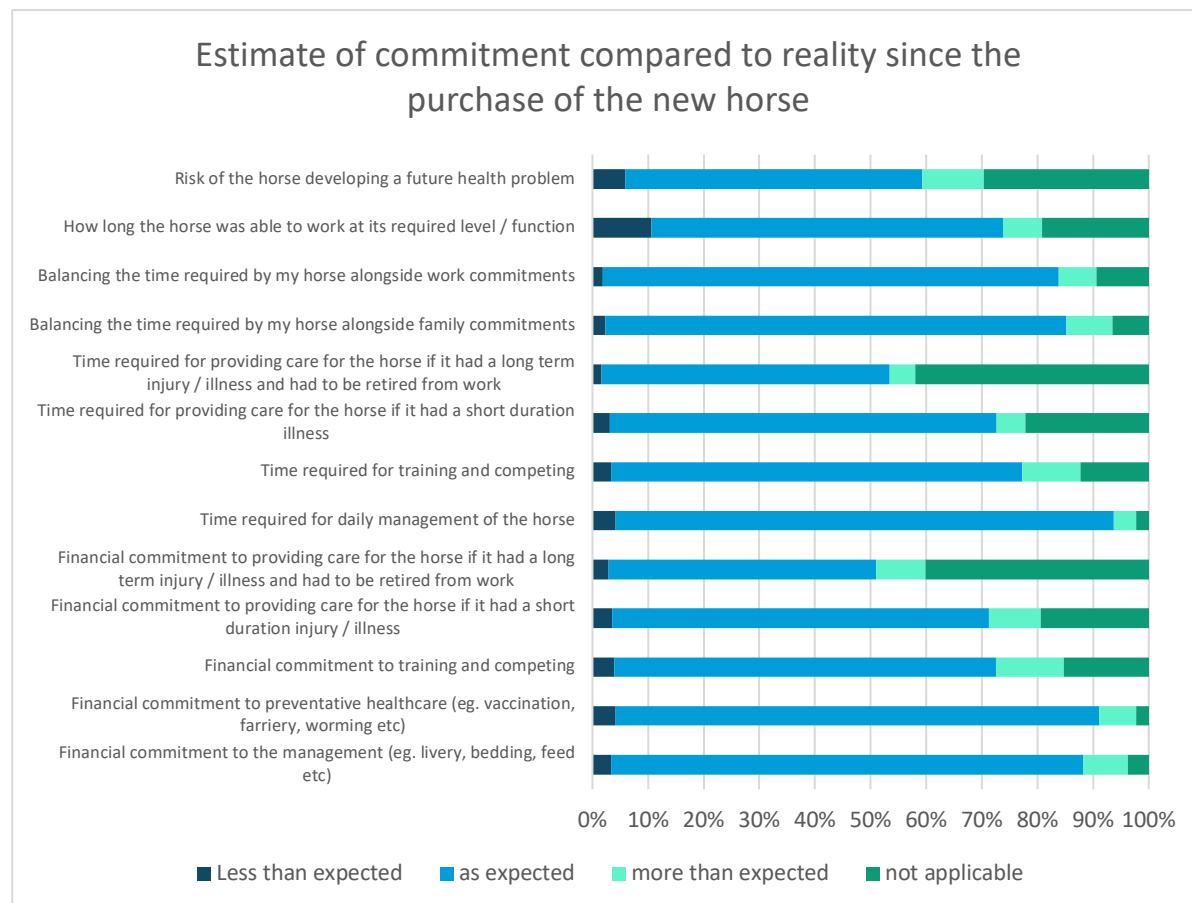


Figure 20: Percentage bar chart of frequency of participants' responses about commitments after purchasing their horse from an online survey exploring decision-making during key events within a horse's lifetime (n=479).

Important factors:

When asked about factors they considered important prior to the purchase of their horse, the majority of participants deemed personal safety, matching of ability with their horse, whether the horse is happy and has a good quality of life when working, quality of life when retired and their ability to care for the horse if there was a problem very important (Figure 21). The majority also stated that 'what other people think about how you ride and compete your horse' (69.2%, n=332/480), 'what other people think about how you manage and care for your horse' (57.5%, n=276/480) and 'what other people think

about your horse's health and welfare' (44.4%, n=213/480) were not important. However 24.0% (n=115/480) thought that 'what other people think about your horse's health and welfare', was moderately important, and 38.3%% (n=184/480) thought it was either moderately or very important (Figure 21).

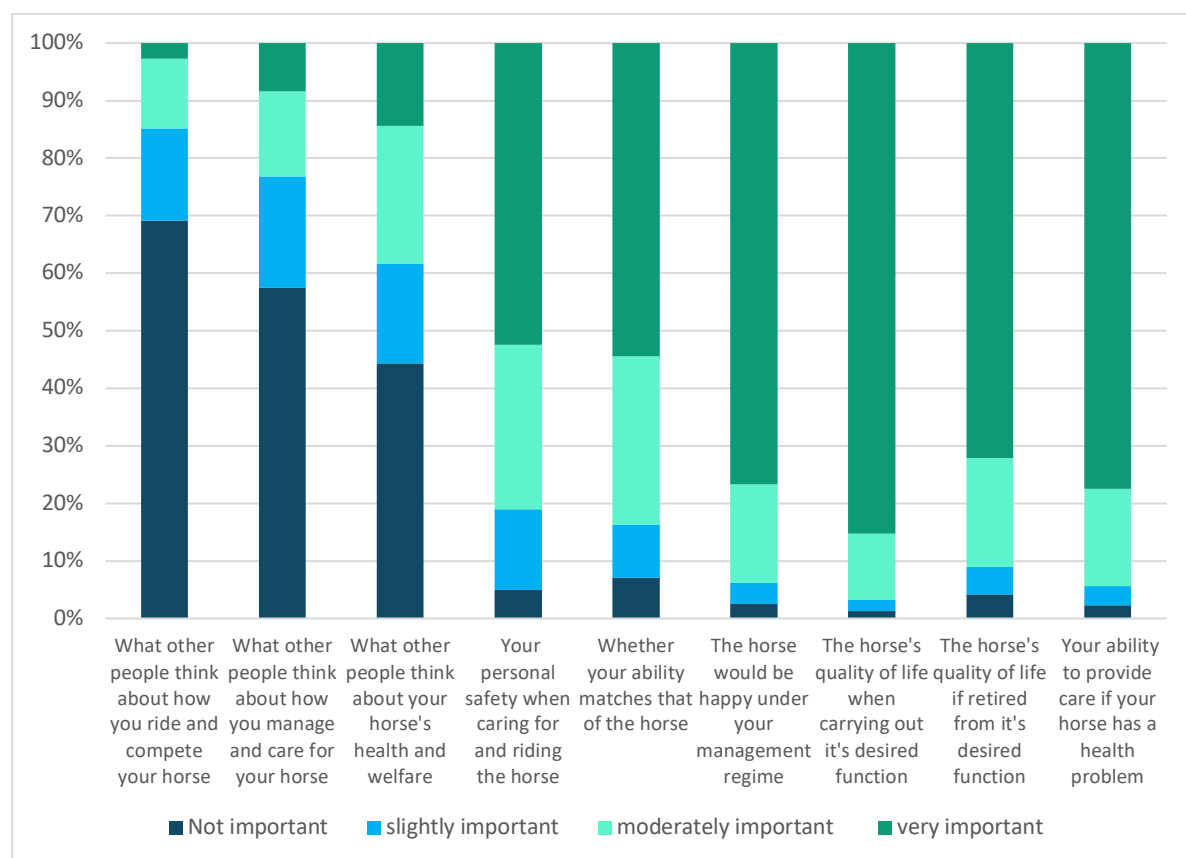


Figure 21: A percentage frequency bar chart of how important several factors involved with the ownership of horses were to participants prior to the purchase of their horse, from an online survey exploring decision-making during key events within a horse's lifetime (n=480).

Since the purchase of the horse, similarly to the importance of the factors prior to purchase of the horse, the most frequent response for what other people think about how you ride and compete your horse (67.4%, n=324/481), how you manage and care for your horse (55.6%, n=267/480) and your horse's welfare (45.5%, n=219/481), was not important.

Euthanasia decisions:

There were 409 participants that had experienced euthanasia with one of their horses. The median number of horses the participants had put to sleep was two (range 1-120) and the most frequent year of the participant's most recent euthanasia of a horse was 2017 (range 1985-2018). Fifty nine percent of the participants' most recent euthanasias were humane destruction (n=242/409) rather than elective (40.8%, n=167/409). The mean age of the horse when it was put to sleep was 19.5 years (range 1-46 years). The three most frequent issues the horse had at the time of euthanasia were injury or illness with a low chance of survival (56.1%, n=222/396), poor quality of life (42.7%, n=169/396) and long-term injury (34.6%, n=137/396). Fifty six percent (n=221/396) of participants only reported one characteristic at the time of euthanasia, and 60.2% (n=133/221) of these reported that injury or illness had a low chance of survival.

When asked about factors considered whilst making the end of life decision, the majority of participants responded that if the horse's current quality of life (95.8%, n=388/405) or its future quality of life will/ may become compromised (88.6%, n=358/404), were very important factors in the decision-making process. In contrast all other factors were most frequently deemed not important by the participants (Figure 22).

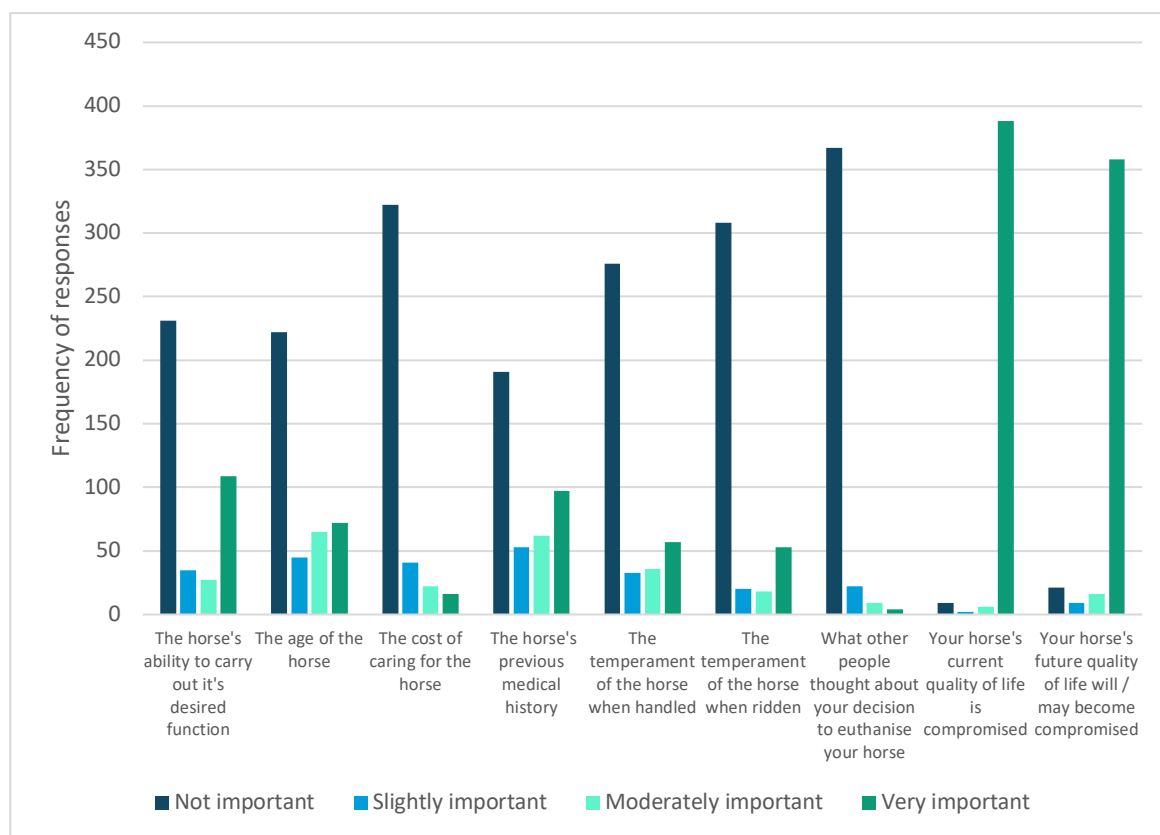


Figure 22: A bar chart of how important several factors were to participants when making the euthanasia decision for their horse. Data from an online survey exploring decision-making during key events within a horse's lifetime (n=405).

The majority of participants (91.5%, n=375/410) sought advice or guidance when making the end of life decision, and 94.7% (n=355/375) of these sought advice from a vet. A quarter of participants sought advice from family members (26.4%, n=99/375) and friends/ other horse owners (25.1%, n=94/375).

Figure 23 presents how participants ranked statements regarding their experience at the time of their horse's euthanasia. The majority of participants agreed or strongly agreed with nine of the statements including making the same decision again, their confidence in the euthanasia decision and their responsibility to be there. There was more variation in response to statements around feeling guilty (39.0%, n=159/408 agreed or strongly agreed, and 44.9%, n=183/408 disagreed or strongly agreed), grieving for the change in

lifestyle, and feeling relief from the worry in caring. There were no major differences in responses by participants' if it had been six months or longer since they had their horse put to sleep.

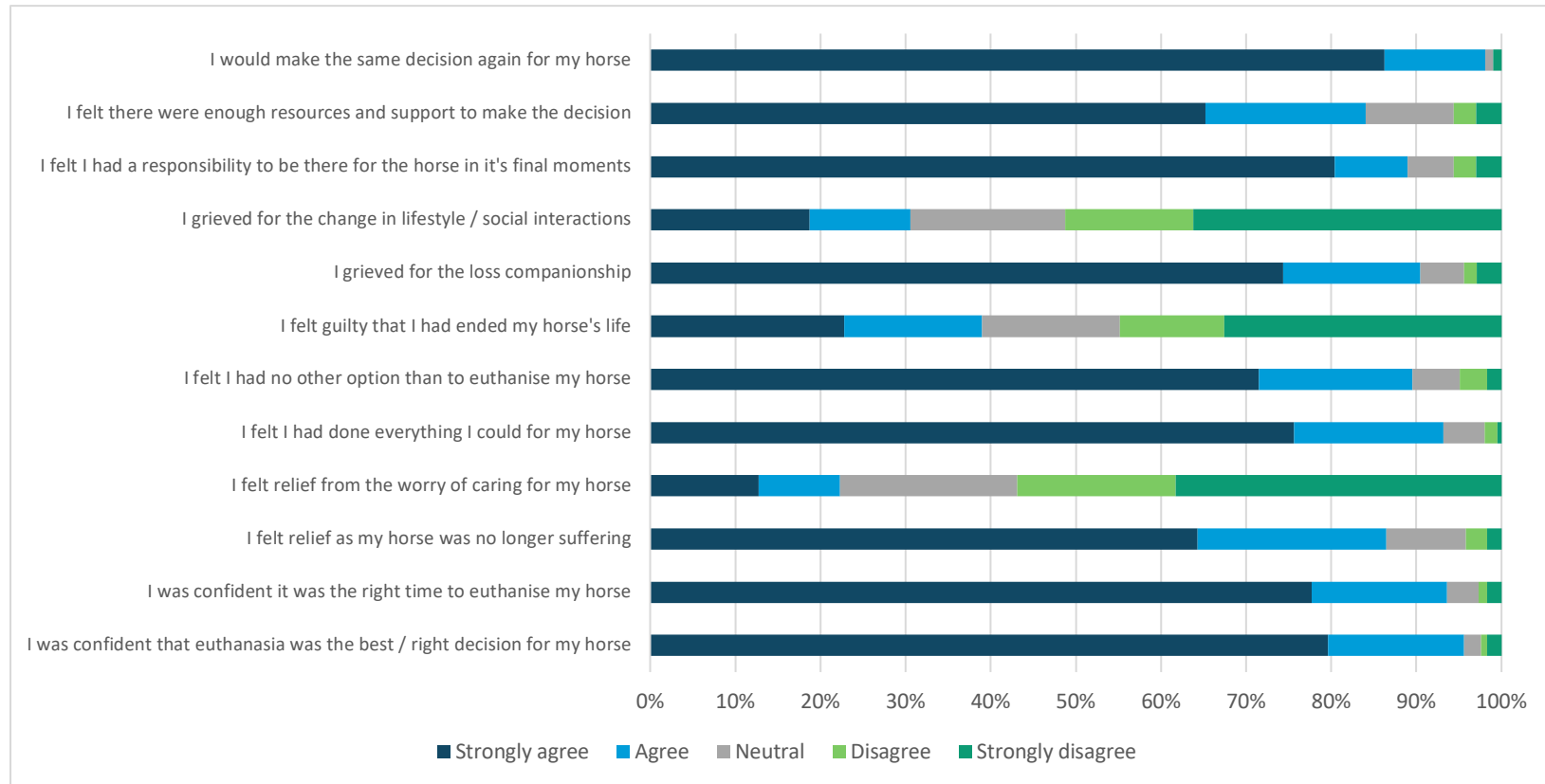


Figure 23: A percentage bar chart of participants' responses to a 5 point Likert style scale to statements regarding their experiences at the time of euthanasia of their horse. Data from an online survey exploring decision-making during key events within a horse's lifetime (n=408).

3.4 Discussion:

The aims of the cross-sectional questionnaire were to explore the themes identified within the semi-structured interviews, within a larger sample of the population of horse owners. The recruitment methods used may have biased responses towards a more experienced and confident population. However the lack of an objective assessment method to measure the experience of participants within this study meant that their relative experience couldn't be assessed; it shouldn't be assumed the confidence of an owner to make decisions is congruent with their ownership experience. The confidence of participants was however an important finding, as the majority of participants had very high confidence in respect to their abilities and decision-making. It's important to understand why many do not ask advice when deciding on the suitability of the horse. Although it's reassuring those with less confidence are more likely to seek advice, there is still a significant number who do not. Expectations met reality for the majority, however it was difficult to truly explore this theme when only asking for information on one horse, as within interviews, participants were able to discuss their ownership experiences in more depth. In respect to euthanasia decisions, many were confident it was the correct decision for the horse, but this study also raises questions over whether this was however the most appropriate timing. Further exploration into whether the decision should have been made earlier would be beneficial to improving the health and welfare of the horses within the UK.

34.1 Method limitations:

An online questionnaire comprising of 41 questions was developed using Online Surveys (Jisc, 2018), to explore the themes identified in the qualitative interviews. Many argue the benefits to using online questionnaires include efficiency in time, cost and data management (Kwak and Radler, 2002, Lefever *et al.*, 2007). Several limitations were identified and should be considered when analysing the survey responses, this will be discussed further within the final discussion. For this study however, a limitation was identified that was exclusive to this questionnaire.

Online questionnaires are often considered to have a decrease in problems with data entry, with less chance of data entry errors occurring (van Gelder *et al.*, 2010). However within the current survey, an error in the logic used to filter respondents who had only had experience of one event (either purchase or euthanasia decisions) through the questionnaire more efficiently, meant the data was lost for 25 participants who had not had experience of euthanasia. The error was identified quickly and rectified so it would no longer impact on further responses, however the data of those 25 respondents couldn't be accessed for the use in the final results as it was beyond the capabilities of the software used.

A Likert scale will traditionally be a 5-point scale with a 'neutral' option. However it has been argued that the use of a 'neutral' option allows for participants to not make a decision for or against a statement. It was deemed important to this study that participants were able to respond with a positive or negative opinion on each statement, so further owner typing could be performed.

3.4.2 Key findings:

Study population:

The median number of horses purchased by the participants was four, with a broad range of responses from 1-200 horses. This high number may be a reflection of the job of the participant, a professional, for example an owner of a riding school may purchase a greater number of horses in their lifetime compared to someone purchasing a horse for leisure and hobby purposes. The mode year of purchase was 2017, several factors for this should be considered. Is this a reflection of the survey population and the self-selection bias, as those with more recent experiences were more likely to want to complete a questionnaire on the topic? This was a similar finding for participants most recent euthanasia experience (mode year = 2017), therefore these values may be interrelated, as those who lost a horse in 2017 may then also purchase another within the same year as a replacement. The median number of horses the study population had made the decision to euthanise, was two horses. The majority of participants had therefore had multiple experiences of making these decisions and this should be considered when interpreting the results, as responses are skewed towards experienced participants.

3.4.2.1 Factors affecting purchase decisions:

Owner factors:

The participants' self-rating of their confidence within this study should be appreciated, and may be consistent with either a bias in the population responding, or issues around self-rating. Over half of participants in this

present study stated that not only were they very confident in deciding what type of horse to view to purchase, but also if the horse being tried was suitable. When asked how confident they were providing day-to-day management and care, just under ninety percent of participants ranked themselves an 8 or higher for providing care for their own horses and other horses. A study assessing self-efficacy of intermediate level event riders using a similar 11 point scale (0-10) found the mean scores for each discipline: dressage, show jumping and cross country, were 7.62, 7.60 and 7.98 respectively (Beauchamp and Whinton, 2005). Within this current study, participants were asked for their confidence in providing care rather than their perceived riding ability, but it shouldn't be disregarded that the mean rank was higher (8.82). There are several considerations that should be taken into account to gain a better understanding of this high value. Misinterpretation of the question in our study may have led to the participants believing it was an assessment of how well they care for their horses therefore a reflection of the horses' welfare, and not a self-assessment of how confident they feel about providing care for horses. The welfare of horses has been found to be important to owners in a number of studies (Visser and Van Wijk-Jansen, 2012, Buckley *et al.*, 2004), and so the participants may perceive they provide the best possible care for their horses and hence are very confident in their ability to provide that. It should also be noted that maximum confidence may be a reflection of the personality types of those involved with horses, further exploration into these types may be beneficial to understand the personalities that are involved with horses. Due to the self-selection bias commonly known to limit questionnaires, there is the potential of people with higher confidence being more willing to participate in the questionnaire, and it may be a reflection of members of the social media groups used. Revision of sampling methods to access owners with less confidence should be considered to limit the bias

associated with snowball sampling using social media groups. Limitations of the current study do not allow us to understand any other factors surrounding the participants' perceived confidence. Further questions to assess the experience, education and type of horse-owners that have participated would have been beneficial to get an understanding of the current population of horse owners, as well as exploring if high confidence levels are a reflection of the personality types that are involved with horses.

The comparison of participants ranking themselves a 10 with those ranking themselves as a 5 or less identified some interesting considerations.

Unsurprisingly those less confident in providing day-to-day care for their horse were also less confident in making decisions regarding the horse's suitability and requirements. Although it's reassuring that these less confident participants were also more likely to seek advice when making these decisions, there was still one in four of these participants that did not seek any advice on the suitability of the horse. The importance of matching ability and suitability of horse and rider partnerships has been identified by Williams and Tabor (2017). The confidence in making suitability decisions should therefore be considered as a factor that could influence the success of partnership suitability. It cannot be assumed that these respondents are less confident because they are less experienced in making decisions surrounding the purchase of a horse. An objective assessment of a horse owner's experience, compared to their perceived confidence in making decisions could be used to explore this further. From this study however, the lower confidence of some owners should be appreciated and support for these members of the horse owning population, irrespective of their experience, is important. Owner uncertainty or difficulty in making decisions for their horse, for example the suitability of a horse, when veterinary intervention is needed or when

euthanasia is the appropriate decision, may have a substantial impact on the horse's health and welfare.

The advice seeking behaviour of the participants was not surprising, notably that over ninety percent of the study population sought advice from the farrier, and over 75% the vet on a regular basis. The importance of both these professionals to horse owners regarding advice and information was also highlighted by Hockenhull and Creighton (2013), Visser *et al.* (2011) and Lofgren *et al.* (2016). It's not surprising that the farrier had the largest response as this could be influenced by the frequency in which they would interact with the owners, as it is common practice for the farrier to shoe a horse on a 6-8 week basis.

The majority of participants sought no advice when making decisions on the type of horse to view and its appropriate value. This may be a reflection of how personal these decisions are to owners, and how much they value their own personal opinion when it comes to finance and desired requirements of the horse. This could be important when providing support and information regarding the purchase of a horse. Different owners may have different budgets to spend on the horse, with some wanting to spend a lot more than others, irrespective of their ability as a rider. Further investigation into the cost of a horse to then produce a valuable evidence-base for suitable partnership predictions would be beneficial. This could be through various approaches which may include; exploring how key stakeholders involved in the sales of horses (dealers, vets, owners etc.) would evaluate the cost of a horse, which characteristics of a horse have more or less value, and how owners perceive the value of a range of horses with different uses, abilities and experiences.

Horse factors:

The temperament of the horse, both ridden and when handled, were some of the most important requirements when participants were looking to purchase a horse. This was similar to the findings of Graf *et al.* (2013) when exploring the importance of personality traits for both riders and breeders of horses.

Economic weighting was used by asking participants to split €1000 between different traits. Character and temperament were found to be double the value of that of the other most important traits like willingness to work and rideability (€228.67, €122.98 and €105.65 respectively) (Graf *et al.*, 2013). They also found that character and temperament was more important to leisure riders in comparison to professionals, competition riders and breeders. It should be noted however it was still the most important trait for both competition riders and breeders. Graf *et al.* (2013) then further questioned why these traits were so important to both riders and breeders, with the majority giving responses involving the ease of daily work with the horse, the relationship between horse and human, and comfort and safety when handling. Within our present study, three out of four of those with lower confidence ranked the temperament of the horse when ridden and handled to be very important to them. This is reassuring when considering the safety of horse owners, and the importance of suitable temperaments to them. The assessment of the horse's temperament tends to be the responsibility of the horse owner; the pre-purchase assessment or vetting performed by a veterinarian primarily focuses on the physical capabilities of the horse, and not a temperament or behavioural assessment (although this may be noted and/or discussed by the vet). Support and guidance on how best to assess the temperament of the horse for potential purchase, and what temperaments may be better suited to

owners and riders of different experience and confidence levels could be extremely beneficial in aiding purchase decisions.

Similar to other surveys of the horse owning population, the most frequent desired and current function of the horse was for leisure/ hobby and also companionship (Slater, 2016, Hotchkiss *et al.*, 2007). An interesting finding was that the current function of the horse frequently exceeded the original requirements prior to purchase. After purchasing a horse, participants were more likely to identify benefits such as leisure/hobby purposes, exercise and fitness, companionship, lifestyle and culture involvement and the social life/ interactions involved with owning a horse. This may highlight some of the benefits that surround owning horses, and how attitudes to different aspects of the ownership of a horse change after purchase, when there has been time for the relationship and partnership to develop.

— The expectations and reality of the purchase was an important theme emerging from the interviews, with participants discussing experiences where there had been a mismatch. Within the larger sample population in this survey, the majority of participants stated that the horse purchased met their expectations and requirements. It's reassuring that expectations were usually met, however we do not know if these participants had ever had any purchases where this was not the case. We should also be aware that this was not the case for all of the participants in this study, and, further exploration into owners' experiences with unsuccessful partnerships would be valuable to provide advice on avoiding this.

3.4.2.2 Euthanasia decision-making:

The mean age of the horse at the time of euthanasia for these participants was 19.5 years, with a broad range from 1 – 46 years. There is a large amount of research looking at the euthanasia of aged horses (over 15 years) (McGowan *et al.*, 2012, Ireland *et al.*, 2011c, McGowan and Ireland, 2016).

Preliminary findings by the Advancing Equine Scientific Excellence group prior to the development of the 'Just in Case' campaign (World Horse Welfare, 2017), however reported a similar frequency of euthanasia was seen for horses of 7-10 years and also 26-30 years. These findings along with the broad range of euthanasia ages in this study, highlights planning for euthanasia decisions shouldn't be delayed until the horse is older, as the decision may need to be made at any point during the lifetime of the horse.

Another surprising finding was that nearly 60% of the most recent euthanasia's were described as humane destruction. This was defined to participants as; the horse sustains an injury or manifests an illness or disease that is so severe as to warrant immediate destruction to relieve incurable and excessive pain and that no other options of treatment are available to that horse at that time (British Equine Veterinary Association, 2009). Frequently reported reasons for euthanasia within literature include; old age, dangerous or undesirable temperament, acute or chronic injury or illness, or unwanted/abandoned horses (Stull, 2013, McGowan *et al.*, 2012). It's commonly accepted that injuries can happen within the nature of owning horses and equestrian sport. However the welfare implications of such a high figure of humane destructions within the population is extremely vital to consider. Injury or illness with poor prognosis, long-term injury and poor prognosis were the most frequently reported issues the participant's horses had at the time of euthanasia. These were similar to the findings of McGowan *et al.* (2012) where hopeless prognosis and incurable disease were some of the most

frequent reasons for euthanasia for the participants, and the findings of Ireland *et al.* (2011c) where hopeless prognosis was the most frequent factor associated with the decision to euthanise. More specific details of the euthanasia reasons however were not explored within this study, so it's difficult to know if the high number of humane destructions were acute or chronic diseases, or a misunderstanding of what truly constitutes humane destruction. It's not clear from the data whether some of the population left the decision for euthanasia too late with subsequent negative impacts on the horses' welfare, or whether the responses are a reflection of the responsibility grief these participants may have felt when making or describing the decision. This again highlights the need for education and support for horse owners to aid the decision-making process. It also identifies the need for further research to determine how many euthanasia decisions are delayed excessively, and the subsequent impacts on the welfare of the horse (as evidenced in one of the interviews).

The impact of the decision to euthanase their horse on participants was also an important theme that emerged from the qualitative interviews. The feeling and emotions felt by participants of this study population were similar for the immediate feelings and those felt after six months or longer from the experience. These showed a significant short and long-term emotional impact on the owner. For the majority of the statements the participants most frequently 'agreed' or 'strongly agreed' including; making the same decision again, they did everything they could for the horse, and the confidence in the right time and decision for the horse. This suggests that participants did not regret the decision they made for their horses, and again reinforces the need for future research and resources on whether decisions are made at an appropriate time. An important consideration then becomes who is best placed

to make that judgement of the most appropriate time, and a 360 degree observational study which considers the perspective of the owner, their veterinarian and other important stakeholders in the decision-making for a specific horse would help in developing this area further.

Another interesting finding was the variation in responses between participants with regards to the guilt felt, grief from the change to their lifestyle, and relief from worrying about the horse. This highlights the range of feelings and emotions that may be felt by different people, which also agrees with the findings of other euthanasia studies discussed earlier (McGowan *et al.*, 2012). It highlights the conflicts that may occur both within one individual person, and between different people around these decisions. It also highlights that different people may be impacted by the loss of their horse in different ways, so tailored support for those is therefore extremely important.

3.4.3 Key outcomes:

- High self-confidence ratings were seen within the study population, which may not relate to the experience or ability of the owners. Both confidence and experience are factors that should be considered in the assessment and development of tools for categorizing or typing horse owners.
- Owner reflections, self-confidence, experiences, advice seeking behaviour, and the impact of previous euthanasia or critical decisions were key 'owner' factors which should be incorporated into future research on the horse-human relationship, and the development of tools for typing horse owners
- Important 'horse' factors during purchase decisions were; function, ability, temperament, conformation, and long-term planning for the care

and health of the horse. These factors should be considered for the future development of a 'matching tool' or future research on the horse-human relationship.

3.5 Conclusion:

Findings from this exploratory study highlight the high confidence some owners have when making decisions for their horses; whether this confidence is justified requires further investigation. However, it's the small number of those who are not confident in making vital decisions that are the most important. Further research and development into evidence-based tools and strategies to help identify and support this sub-population of owners would be most beneficial. Important areas include what makes a suitable match between horse and owner, how decisions made by those less confident or experienced might impact on not only the horse's welfare but also the safety of the owner, and how delays in important decisions may have an impact on both horse and owner. This study also adds further evidence to include or exclude owner and horse factors that may influence the horse-human relationship, which are important to inform future research.

Chapter 4: Final discussion, future recommendations and conclusions.

The exploration of the horse-human relationship through a scoping review identified a diverse and heterogeneous body of published literature that lacks a robust evidence-base. Several areas which required further exploration were discovered, including how the relationship between horse and owner affects the decisions the owner makes on the behalf of the horse throughout its life. A mixed methods approach using in-depth interviews and cross-sectional questionnaires to explore this area of research had several key findings, which have been used to highlight gaps in the current research and make recommendations for future investigations.

4.1 Methodology justifications and limitations

Thematic analysis of the interview transcripts was chosen for its systematic identification and organisation of patterns into themes, which can then allow for comparisons to be drawn across the data-set (Braun and Clarke, 2006). Two data coding techniques proposed by Braun and Clarke were considered prior to starting the data coding process. An inductive or bottom-up approach derives codes and themes from the data itself. In contrast, a deductive or top-down approach derives codes and themes from the researcher's pre-establish ideas and concepts and existing research evidence. For this study, a combination of both approaches was used; Braun and Clarke have deemed it impossible to perform an entirely inductive approach, as it is difficult for the researcher to ignore the semantic content of the data they are analysing.

The interview methodology can influence the type and nature of the data collected. The initial interview methodology involved data collection via face-to-face interviews over Skype or via the telephone. Not all participants had access to Skype and on piloting, it provided unreliable with connections being frequently disrupted. It was therefore decided to perform all interviews via the telephone. Within qualitative research, telephone interviews are often seen as a less appealing alternative to in-person interviews (Novick, 2008). Face-to-face contact is often important for the development of rapport and a natural environment - elements that are considered important for the production of rich qualitative research (Shuy, 2003). However, many consider savings in time and travel (Chapple, 1999, Sturges and Hanrahan, 2004), an increased willingness to disclose sensitive information (Novick, 2008), and increased access to geographically dispersed participants (Sturges and Hanrahan, 2004, Sweet, 2002), advantages of interviewing via the telephone. For these reasons face-to-face interviews were deemed unsuitable as it would have limited the selection of participants to those in close proximity to the researcher. Novick (2008) extensively explored the bias against telephone interviews in both quantitative and qualitative research, and struggled to identify sufficient evidence to show data loss or distortion, that may impact the quality of research findings. Though it is impossible to know whether the data collected during this research would have been any richer if performed face-to-face, several approaches were used to help overcome some of the limitations of telephone interviews. Prior to the start of each interview, time was taken to talk to the participant informally and answer any questions they may have (as first suggested by Burnard (1994)), and frequent communication with each of the participants allowed for the development of rapport. Following advice from Tausig and Freeman (1988), care was also taken in the choice of words used when participants were disclosing sensitive information, ensuring

empathy and that no judgement was felt by participants for the responses they gave.

This study used online questionnaires to firstly recruit participants for in-depth interviews, and secondly for the exploration of themes identified in the interviews using a larger sample of the horse-owning population. Online questionnaires are considered to be efficient for time, cost and data management (Lefever *et al.*, 2007) and in contrast to postal questionnaires for horse owners, do not require cooperation from vet practices (Mellor *et al.*, 1999). However, there are several limitations that should be considered when interpreting the findings of these studies.

Response rates for online surveys have been found to be lower than postal questionnaires (Bälter *et al.*, 2005, Leece *et al.*, 2004). Yet, the ad hoc distribution methods used for both questionnaires within this study- snowball sampling via social media and email, meant the calculation of response rates is unachievable (Christley, 2016). It is impossible to know the number of people who saw the links to the questionnaires and chose to not participate. The number of participants that did not complete the survey, and the progression through each of the sections prior to dropping out was known for the final questionnaire. Over two thousand people did not make it further than the introduction page, it is not known whether this was because they did not meet the selection criteria or were simply not willing to participate in the questionnaire. These figures were unknown for the recruitment questionnaire, however there were nearly twice as many completed responses in comparison to the final questionnaire exploring decision-making. This could have been due to the selection criteria of the final survey, where those with experience of purchase or euthanasia of a horse were invited to participate.

The use of email and social media to distribute the survey link may have also been a limitation to this study. The link may have been considered 'Spam' for both the email recipients and the social media groups used to share the link (Andrews *et al.*, 2003) and so disregarded before reading the purpose of the study. Self-selection bias is another important limitation, as it's understood that some individuals may be more likely to participate than others (Stanton, 1998, Thompson *et al.*, 2003) hence those with an interest in the study, may be more likely to participate. This is particularly prevalent within online communities (Wright, 2005) such as the equestrian themed groups used within this study. Other studies of the equestrian industry and horse owners have also found this to be a limitation of their research e.g. (Scantlebury *et al.*, 2014, Boden *et al.*, 2013). This therefore leads to systematic bias, and generalisations of study findings cannot be concluded to be a true representation of the horse owning population.

Acquiescence bias by participants has been identified as a limitation for all forms of questionnaire (Wright, 2005), with the appreciation that some people may only answer with what they think you want to hear. This has been found to be less likely in online questionnaires that are anonymous, but it's difficult to ever know if participants are responding truthfully. However, replication of similar studies and comparisons of studies within similar populations has been found to improve this.

4.2 Key findings:

Congruent with other surveys involving horse owners, the majority (97.4% and 97.0%) of participants within each of the questionnaires were female (Boden *et al.*, 2013, Scantlebury *et al.*, 2014, Agar *et al.*, 2016). Most of the

recruitment survey participants spent two hours or more with their horse each day (95.3%, n=832/873). This figure was slightly lower for the decision-making survey where 70.4% spent two or more hours a day with their horse (n=348/494). Both findings however were similar to that found by Visser and Van Wijk-Jansen (2012) where 93.3% of owners spent more than five hours a week with their horse. The management practices used for both questionnaire populations were also similar to the findings of Hotchkiss *et al.* (2007) and the findings of The National Equine Health Survey (Slater, 2016), with the majority of participants keeping their horse on their own premises.

Horse-human relationship and attachment:

The relationships that participants had with their horses varied across all of the studies, but it was found that the majority of participants saw their horses as members of their family – as found in both the recruitment questionnaire and interviews. Companionship was also a current function of the horses, selected by nearly 70% of final survey respondents. The attachment between horse and human was found by Payne *et al.* (2016a) to lack strong evidence. In this study, the feelings of grief and ‘separation distress’ described by some participants in response to euthanasia of their horse, were similar to that of the death of a human, findings comparable to that of Field *et al.* (2009) in pets.

Both humans and animals can fulfil the role of an attachment figure as theorised by Ainsworth (1969). For the loss of a human, five stages of grief are often described; denial, anger, bargaining, depression, and acceptance (Kübler-Ross and Kessler, 2005). Similar stages to these were identified from the interviews when exploring the long-term impacts of euthanasia.

Acceptance (participants carrying on and reflecting back on fond memories of the horse) and still getting emotional were felt by a number of participants. Still

getting emotional could be a factor of the 'depression' stage of grief, which can be described as; withdrawal from life and intense sadness (Kübler-Ross and Kessler, 2005). It should therefore be appreciated the extent to which the loss of a horse, regarded as a companion or family member, may have on the owner or carers.

Mis-matching:

The use of the horse and its ability to carry out the desired function was important to many of the interview participants. It's therefore crucial that we understand why incompatibility and unsuitability of partnerships occurs, especially as it was also a finding in the final survey. The use, and ability of the horse to perform its desired function was an important factor when making purchasing decisions - for both the interview and final survey participants. Over 75% of participants considered the ability of the horse to carry out its function prior to the purchase. Yet only one in four participants regarded the ability of the horse 'very important' and less than 10%, the horse's experience 'very important' when asked what characteristics were important to them when purchasing a new horse. Conversely, the requirements that were deemed 'very important' to the final survey participants, were the horse's temperament and conformation. This suggests that the horse's performance, and its temperament are important aspects to an owner looking to establish a new partnership. However the performance and temperament may vary depending on the environment and handler or rider, and there are no consistent and reliable measures of either, which means mis-matching and problems in the partnership could occur. The focus on how the horse performs, looks and behaves with its vendor may be less important than how its ability, experience, and temperament suit the new owner's capabilities and yard environment.

Further investigation into how owners' requirements of a horse match with partnership success is important to provide an evidence-base and identify key factors that can make a partnership successful or unsuccessful.

Other studies have described the incompatibility of rider and horse as very important, with lack of rapport between horse and rider leading to poor performance (Wipper, 2000), and the potential of never forming a bond or partnership (McKernan, 2003). Again, this highlights the importance of understanding why expectations and reality of purchase are sometimes incongruent, and the potential welfare implications of this for both horse and rider. The development of 'personality matching profiles' for both leisure and competition riders was suggested by Williams and Tabor (2017), and the findings from this study further support this proposal and identify key factors to incorporate into this tool. A tool derived from an evidence-base of the effects of different factors on partnership success and suitability would be beneficial.

Euthanasia planning:

The health and welfare of a horse is primarily the responsibility of its owner (Hemsworth *et al.*, 2015). Many decisions are made by owners on behalf of the horses in their care, with euthanasia decisions having an important impact, particularly on the horse's welfare. This was therefore a key focus for the interviews and surveys. Euthanasia is a highly emotive subject, and was likely to be influenced by, and impact on, the horse-human relationship. The focus of some recent resources for this important and challenging decision have been euthanasia planning. A recent campaign released by World Horse Welfare (2018), 'Just in Case', has been developed due to the appreciation of

the difficulty in making euthanasia decisions, and to act as a tool for euthanasia decisions. The interview participants' responses to questions surrounding having a euthanasia plan for the horses currently in their care were: either no plan in place, an idea of the process but not a plan for when it would be performed, or a plan in place for their horse if a euthanasia decision is required. None of the participants interviewed had heard of this campaign. Findings from the final survey do however support the benefit of such tools. Only half of the respondents to the final survey had a plan for when they may need to make a euthanasia decision for the horse. The concerning responses being those who did not have a plan or did not want to think about making a plan. Notably, over 80% of participants planned to keep their horse for the entirety of its life, and a proportion of those were, owners without a plan for when the end of life decision would need to be made. Further promotion and education of the importance of being prepared would be beneficial, particularly for inexperienced horse owners who find these decisions more difficult.

Quality of life:

Assessing quality of life is an important factor when making decisions. QOL emerged from the interviews in both discussions of the purchase and care for the horse, as well as the decision-making process for euthanasia. There were similar findings within the larger sample population of the final survey, where over 80% of participants deemed the quality of life of the horse when carrying out its desired function, or if retired from its desired function, 'very important' when making purchase decisions. For the factors influencing the decision for euthanasia of their horse, poor quality of life was one of the most frequent issues of the horse at the time of euthanasia (42.7%). Several studies of euthanasia in equids also identified QOL as an important factor; Ireland *et al.*

(2011a), Thiemann *et al.* (2018). It was therefore unsurprising that for over 90% of participants in the final study, compromise to the current or future quality of life of their horse was a 'very important' factor that influenced their decision. This was a similar finding to that of McGowan *et al.* (2012), although their focus was specifically on euthanasia decisions for aged horses, it nonetheless highlights the importance of QOL to owners of horses, irrespective of the horse's age. The problem arises however in how owners assess quality of life, especially if they are not experienced, or have an extreme attachment which affects their judgement. There is an urgent need for a simple and reliable measure of quality of life to aid owners in their decision-making. However it should be remembered that for some owners, their relationship with their horse may override objective assessment. Further research is needed to identify types of owners or relationships at risk of this, and how further support can be given to optimise the health and wellbeing of horses in their care.

Shared decision-making:

When making a decision, respondents from all three studies identified the importance of the support from others when making a decision for their horse. This was particularly true for euthanasia decisions and the need for support from the vet. Shared decision-making has been identified as a favoured way to make decisions in both human and veterinary medicine (Cornell and Kopcha, 2007, Chewning *et al.*, 2012). The importance of veterinary advice in equine euthanasia decisions was identified by McGowan *et al.* (2012), and also described for small animal practice (Kerrigan, 2014, Sheridan and Tottey, 2016). Throughout the interviews, shared decision-making was important to the majority of participants. The inability of some participants, particularly

those who are less experienced (Interview Group 3), to make a decision for their horse was an extremely important finding. For one participant, they argued that the need for assistance in the decision process, was due to their inexperience and lack of education and understanding surrounding the health and welfare of their horse. In contrast, another inexperienced owner described their inability to make a decision, even under the strict direction of the vet, and this seemed likely to have had a negative impact on the horse's welfare and quality of life. For this participant, the intensity and extreme attachment involved in the relationship they had with their horse affected their ability to make a decision. Human-animal relationships and the weakness of the HAB, has been reported as an important factor associated with reasons for unwanted animals (Lambert, 2014), often impacting on the animal's health and welfare. However, it should also be appreciated that extreme attachments or relationships can also impact welfare and health of animals by their effect on decision-making, as evidenced in this study. This group of owners may also be particularly susceptible to responsibility grief, which impacts them emotionally after the event, but also hinders their decision-making beforehand. Shared decision-making with key stakeholder, such as vets, may provide a solution to this issue, and processes to encourage owners to seek this support as early as possible are needed. This highlights the need of exploring the benefits of a 'support group' comprising of people whose opinions the owner values (e.g. Vets, friends, family, trainer etc.) that would help them make decisions, such as euthanasia. This group-decision making would allow owners to abdicate some responsibility, and share it between a trusted group of people. Interactive workshops or online resources could also be used to encourage owners to talk about their experiences and opinions regarding important decisions for their horses. This could include discussion of the decision process for several scenarios with industry professionals such as

vets and welfare charities, and how different decisions may have different outcomes. These scenarios and discussions would be particularly important to help owners understand the importance of making a decision for their horses that would not be to the detriment to its welfare.

4.3 Future recommendations:

Throughout the project, several key factors surrounding the horse-human relationship influencing decision making were identified, and are presented in Table 16.

Table 16: Factors identified through in-depth interviews of 11 participants on their experiences of purchasing and euthanasia of horses, and two online questionnaires of horse owners exploring decision-making during key events in their horse's lifetime (n=938 and n=495).

	Owner	Horse
Factors	Bond / attachment to horse	Required function
	Experience	Temperament
	Confidence	Ability
	Advice-seeking behaviour	Suitability to rider
	Shared decision-making	Age
	Time commitments	QOL
	Financial commitments	Health
	Impact of previous euthanasia/ traumatic events (feelings of responsibility, preparation and planning for future decisions)	Conformation
	Ability to provide long-term care	

A number of recommendations have been made throughout this project guiding where further research is required, specifically around the

development of an owner typing tool, a matching tool, and studies to look at welfare impacts and resources to support decision-making. The outcomes of this study, including the identification of owner and horse factors associated with key decision-making, will enable the development of a large scale future study investigating the impact of the horse-human relationship on decision-making and welfare. There are two key areas to explore: firstly, which aspects of the horse-human relationship are significantly associated with a successful or unsuccessful partnership; secondly, how the horse-human relationship and the appropriateness and timing of decisions affect the horse's welfare.

4.4 Final conclusion:

Several gaps within the research surrounding the horse-human relationship were identified through a scoping review of the literature. A significant area is how the relationship humans have with the horses in their care influences several important decisions fundamental to the horse's health and welfare. Further exploration of this area using a mixed-method approach has started to fill some of the gaps within the research, creating a foundation on which to build an extensive and supportive evidence-base. Several areas that require further investigation have been identified including: high self-confidence, lack of knowledge and understanding of inexperienced owners, responsibility grief, and the strength of the attachment type (family or companion) bonds which may delay the euthanasia decision, to the detriment of the horse's welfare. How these factors influence the decisions made on the behalf of horses, and therefore the horse's health and welfare is important to understand. This study has investigated the owner and horse factors that are important for key decision-making (choosing and purchasing the horse, and end of life decisions). This lays an essential foundation of evidence which will enable future studies to model which factors are important, and how they affect decisions. In turn, this may lead to the development of tools which can help identify partnerships at risk, and the resources needed to support them.

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Appendices:

Horse Owner Recruitment Survey

Introduction

Hello,

My name is Harriet Clough and I am a 4th year vet student currently undertaking research at the School of Veterinary Medicine and Science at the University of Nottingham. I am intercalating my studies with a one year Masters of Research project, which has been kindly supported by The Horse Trust. The aim of the research is to first establish a better understanding on the horse-human relationship. We will then be investigating the factors affecting decision making by the horse owner at specific events during the horse ownership period.

The first stage of the study is to identify the current demographics of horse owners, their relationship to horses and their information seeking behaviour. **This area of the study is aimed at all people who currently own or care for horses on a regular basis that are of 18 years or over.** I would like to ask if you would be willing to complete a short survey which should take no longer than 10 minutes.

Following this survey I would like to recruit horse owners who would be willing to participate in two short face-to-face interviews which will be exploring the decision making process in various stages in horse ownership. If you would be willing to participate in these interviews please provide your contact email at the end of the survey. Participation in this research is entirely voluntary and there is no obligation to take part.

This study has been approved by the School of Veterinary Medicine and Science's ethics committee. The information I collect will be presented in my Masters thesis and possibly used for publication and research presentations at conferences or meetings. All responses will be anonymised and no contact details will be passed on to any other persons or third party organisations. All data will be securely stored by the researcher.

Your help is very important to the success of this study, so we would appreciate your time and interest. Further information about the study can be obtained by contacting Harriet Clough or Sarah Freeman on:

Researcher: Harriet Clough – svxhc1@nottingham.ac.uk

Supervisor: Sarah Freeman - svzslf@nottingham.ac.uk

Many thanks in advance for participating in this survey,

Harriet Clough

Horse Owner Recruitment Survey

Consent

This consent form is a formal way of indicating that you agree to participate in this study and that you understand that any information collected by the researchers:

- will be used for a research study
- may be written in a report for publication
- may be presented at research conferences or meetings
- will be anonymous and treated confidentially
- will only be accessed by research colleagues or examiners

As a participant in this survey, you may:

- request to see a copy/summary of the completed study
- request to see any information written down/kept during the process of data collection

* **1** If you are willing to participate in this study, please complete the following consent section.

- ☐ I have read and understood the relevant information regarding consent and agree to the terms laid out for my participation in this study.
- ☐ I confirm I am of 18 years of age or over

Horse Owner Recruitment Survey

Participant information

During this survey the term horse will be used but includes horses, ponies, donkeys and any other equids that you may care for.

2 If you are happy to do so, please tell us your gender. Your responses will be anonymous.

- ☐ Male
- ☐ Female
- ☐ Transgender
- ☐ Non-binary
- ☐ Prefer not to say

3 If you are happy to do so please tell us your age:

- ☐ 18-24
- ☐ 25-29
- ☐ 30-39
- ☐ 40-49
- ☐ 50+

4 If you are happy to do so, please provide us with the first part the postcode for your home address (eg. LE12) this will enable us to identify the region you are located.

5 Please specify the relationship you have to the horse (s) in your care. Please tick all that apply.

- ☐ Owner
- ☐ Owner + rider
- ☐ Trainer
- ☐ Sharer
- ☐ Loan
- ☐ Yard manager/ owner
- ☐ Groom
- ☐ Rider
- ☐ Other (please specify)

6 Please state any equine related qualifications that you have. Please tick all that apply.

- ☐ No formal qualifications
- ☐ Pony Club Tests
- ☐ BHS stage exams
- ☐ College course
- ☐ Undergraduate degree eg. animal science, veterinary science etc.
- ☐ Postgraduate degree
- ☐ Other (please specify)

7 Please identify any academic qualifications that you have. Tick all that apply.

- ☐ GCSE/ O level/ National 5s
- ☐ A level/ International Baccalaureate/ Highers/ Advanced Highers
- ☐ BTEC
- ☐ GNVQ
- ☐ Diplomas
- ☐ Foundation degree
- ☐ Bachelor degree
- ☐ Masters
- ☐ PhD
- ☐ N/A
- ☐ Other (please specify)

8 Average time spent with horse (s) each day? Please specify to the nearest hour.

9 Horse-human relationship: Please indicate along the scale how you view your horse/ pony (s)

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I consider my horse/ pony (s) to be pets	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I consider my horse/ pony (s) to be working animals (eg. For competition, breeding, financial gain etc)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Working with horses is my profession	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Horses are a hobby/ passion of mine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I consider my horse/ pony (s) to be part of my family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I consider my horse/ pony (s) to have a soul	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10 On this sliding scale please indicate where you would rank yourself regarding your experience with horses. *Please click on the slider for your answer to register.*

No experience (0)	Expert (10)	<input type="text"/>
<input type="range"/>		

11 Please state the number of horses you **currently** keep/ own:

12 Please state the number of horses you have **previously** kept/ owned:

- 13 Please state the total number of horses have you purchased/ owned. (If unknown please leave blank)

- 14 Are you affiliated with/ a member of any equine societies – tick all that apply

- ☐ British Horse Society
- ☐ Breed society
- ☐ British Dressage
- ☐ British Eventing
- ☐ British Show Jumping Association
- ☐ British Show Horse Association
- ☐ British Driving Society
- ☐ Veteran Horse Society
- ☐ Riding Club
- ☐ Pony Club
- ☐ Other (please specify)

- 15 Have you had any veterinary treatment for your horse (s)?

- ☐ Yes
- ☐ No

- 16 Have you had any experience with referral of your horse (s) to specialist referral veterinary practices?

- ☐ Yes
- ☐ No

- 17 Please tell us how you got involved with horses?

18

Have you had any of your horses put to sleep that you have owned or cared for?

☐ Yes

☐ No

Horse Owner Recruitment Survey

Horse Information

Please answer the following questions in regards to information about your horse/ pony. (If you have more than one please refer to the main horse that you care for.)

- 19 What is the address of the **owner** of the horse? (if different to your information previously given) *Please provide the first part of the post code (eg. LE12) so we can identify the region that the owner is located.*

- 20 What is the age of the horse? *Please state to the nearest 0.5 of a year eg. 11.5 years*

- 21 What group best describes the breed of your horse?

- ☐ Donkey/ mule
- ☐ Miniature pony eg. Miniature Shetland, Shetland, Falabella etc
- ☐ Pony eg. Welsh section A, B, C, Native etc.
- ☐ Arab type eg. Arab, Arab x, Anglo-Arab etc
- ☐ Cob type eg. Welsh cob, cob, cob x, Welsh section D etc
- ☐ Thoroughbred type eg. TB, TB x, quarter horse, standard bred etc
- ☐ Warmblood type eg. Irish sports horse, IDxTB, KWPN, Oldenburg, Trakehner, Andalusian etc
- ☐ Heavy breed eg. Shire, Clydesdale, Suffolk punch etc
- ☐ Other (please specify)

22 What is the sex of your horse?

- ☐ Stallion
- ☐ Gelding
- ☐ Mare

23 Please state the length of ownership of the horse in it's current home. *Please specify to the nearest 0.5 of a year eg. 3.5 years*

24 Please select the option that best describes your horse's routine management:

- ☐ Full livery
- ☐ Competition Livery
- ☐ Part livery
- ☐ DIY livery
- ☐ Kept at home/ own yard grass livery
- ☐ Kept at home/ own yard DIY
- ☐ Kept at home/ own yard - care is provided by part time staff
- ☐ Kept at home/ own yard - care is provided by full time staff
- ☐ Grass livery
- ☐ Working livery
- ☐ Other (please specify)

—

27 What is the **main** activity you carry out with your horse. *If more than one horse please refer to the main horse that you care for.*

- ☐ Dressage
- ☐ Show-jumping
- ☐ Eventing
- ☐ Showing
- ☐ Hunting
- ☐ Driving
- ☐ Horseball
- ☐ Racing/ point-to-point
- ☐ Polo
- ☐ Endurance
- ☐ Breaking in/ training
- ☐ Hacking
- ☐ Schooling
- ☐ Western
- ☐ Vaulting
- ☐ Companion - grooming, handling etc.
- ☐ Other (please specify)

28 Where did you purchase your horse from? *If more than one please refer to the main horse that you care for.*

- ☐ Dealer - someone whose main income is from buying and selling on horses.
- ☐ Professional producer - someone whose main income is from producing and selling young horses.
- ☐ Private seller - someone whose main income is not from the buying and selling of horses.
- ☐ Riding school
- ☐ Breeder - someone whose main income is from the breeding and selling of horses
- ☐ Other (please specify)

- 29 Please estimate the total amount you spent on your horse in the last year? (eg. on feed, livery, tack, training, farrier, vet treatment, competition entry costs etc.)

- 30 Please estimate the amount you spent on veterinary treatment for your horse in **the last year?**

- 31 Please estimate the amount you are **willing to spend** on veterinary treatment for your horse per year?

32 For the **top 3** areas that you spend the most money on regarding your horse please estimate how much was spent on each of the three areas **in the last year**:

Training	<input type="text"/>
Competition entry fees	<input type="text"/>
Tack/ accessories	<input type="text"/>
Farriery	<input type="text"/>
Feed supplements	<input type="text"/>
Physiotherapist/ Chiropractor/ Osteopath	<input type="text"/>
Veterinary treatment (including vaccination)	<input type="text"/>
Behaviourists	<input type="text"/>
Livery (feed, bedding, grass management and stabling)	<input type="text"/>
Insurance	<input type="text"/>
Preventative healthcare (eg. worming, dentistry)	<input type="text"/>
Transport (cost of running/ hiring transport)	<input type="text"/>
Society membership (eg. BHS, BE, BSJA)	<input type="text"/>
Feed, bedding and grass management on your own yard.	<input type="text"/>
Other	<input type="text"/>

33 If you have answered other to the previous question. Please specify what the money was spent on:

34

Please identify along the scale how you budget for your horse in the following areas.

If you have more than one horse please refer to the main horse in your care.

	I do not spend any money on this	I have a contingency fund for this	I have a fixed budget for this	I have an unlimited budget for this
Training (of horse and/or rider)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Competition entry fees	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tack/ accessories	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Farriery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feed supplements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physiotherapist/ Chiropractor/ Osteopath	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Veterinary treatment (including vaccinations)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Behaviourists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Livery (feed, bedding, grass management and stabling)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Insurance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Preventative healthcare (eg. worming, dentistry)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Transport (cost of running/hiring transport)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Society membership (eg. BHS, BE, BSJA etc)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feed, bedding, grass management on your own yard	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Horse Owner Recruitment Survey

Information sources

For the following scenarios please indicate the information source you would use in the **first instance**. Please then rank the different information sources as to how important you deem the information they provide.

Horse Owner Recruitment Survey

Scenario 1

You have recently purchased a new horse. On collecting your new horse the seller informs you that the previous worming history for the horse is unknown. Where would you seek advice regarding what to do next in creating a worming protocol for this horse?

35 Please indicate where you would source information from **first** in this situation.

- ☐ Nutritionists
- ☐ Coach/ Trainer
- ☐ Vets (including practice reception and nurses)
- ☐ Internet
- ☐ Yard owner/ manager
- ☐ Physiotherapist/ Chiropractor
- ☐ Own knowledge
- ☐ Research studies
- ☐ Behaviourists
- ☐ Farrier
- ☐ Magazines/ textbooks
- ☐ Organisations (eg. BHS)
- ☐ Other horse owners
- ☐ I wouldn't seek advice
- ☐ Other (please specify)

36

Please identify along the scale how important you would deem the information provided by each of the sources **regarding this scenario**.

	I do not use this resource	I would not use this resource	I have used this resource but have not found it useful	I have used this resource and have found it useful
Nutritionists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coach/ Trainer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vets (including reception staff and nurses)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Yard owner/ manager	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physiotherapist/ Chiropractor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Own knowledge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research studies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Behaviourists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Farrier	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Magazines/ textbooks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other horse owners	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organisations (eg. BHS)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Horse Owner Recruitment Survey

Scenario
2

You have started to notice that your horse has become increasingly stiff on the left rein and is reluctant to canter on the correct leg. You are concerned as this has never happened before. Where will you go to seek advice on this issue?

37 Please indicate where you would source information from **first** in this situation.

- ☐ Nutritionists
- ☐ Coach/ Trainer
- ☐ Vets (including practice reception and nurses)
- ☐ Internet
- ☐ Yard owner/ manager
- ☐ Physiotherapist/ Chiropractor
- ☐ Own knowledge
- ☐ Research studies
- ☐ Behaviourists
- ☐ Farrier
- ☐ Magazines/ textbooks
- ☐ Organisations (eg. BHS)
- ☐ Other horse owners
- ☐ I wouldn't seek advice
- ☐ Other (please specify)

38

Please identify along the scale how important you would deem the information provided by each of the sources **regarding this scenario**.

	I do not use this resource	I would not use this resource	I have used this resource but have not found it useful	I have used this resource and have found it useful
Nutritionists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coach/ Trainer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vets (including reception staff and nurses)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Yard owner/ manager	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physiotherapist/ Chiropractor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Own knowledge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research studies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Behaviourists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Farrier	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Magazines/ textbooks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other horse owners	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organisations (eg. BHS)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Horse Owner Recruitment Survey

Scenario
3

Your horse is eating and drinking normally and nothing has changed in his daily routine (feed, stable management, grazing etc.) However you are concerned that your horse is losing condition and is reluctant to work forward in the school. Where would you seek advice on this issue?

39 Please indicate where you would source information from **first** in this situation.

- ☐ Nutritionists
- ☐ Coach/ Trainer
- ☐ Vets (including practice reception and nurses)
- ☐ Internet
- ☐ Yard owner/ manager
- ☐ Physiotherapist/ Chiropractor
- ☐ Own knowledge
- ☐ Research studies
- ☐ Behaviourists
- ☐ Farrier
- ☐ Magazines/ textbooks
- ☐ Organisations (eg. BHS)
- ☐ Other horse owners
- ☐ I wouldn't seek advice
- ☐ Other (please specify)

40

Please identify along the scale how important you would deem the information provided by each of the sources **regarding this scenario**.

	I do not use this resource	I would not use this resource	I have used this resource but have not found it useful	I have used this resource and have found it useful
Nutritionists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coach/ Trainer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vets (including reception staff and nurses)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Yard owner/ manager	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physiotherapist/ Chiropractor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Own knowledge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research studies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Behaviourists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Farrier	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Magazines/ textbooks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other horse owners	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organisations (eg. BHS)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Horse Owner Recruitment Survey

Scenario
4

Your horse has recently started bucking in the school and is reluctant to move forward out on a hack. He has becoming increasingly more difficult to handle on the ground. He often tries to barge out of the stable and has started to bite. Where would you seek advice on this issue?

41 Please indicate where you would source information from **first** in this situation.

- ☐ Nutritionists
- ☐ Coach/ Trainer
- ☐ Vets (including practice reception and nurses)
- ☐ Internet
- ☐ Yard owner/ manager
- ☐ Physiotherapist/ Chiropractor
- ☐ Own knowledge
- ☐ Research studies
- ☐ Behaviourists
- ☐ Farrier
- ☐ Magazines/ textbooks
- ☐ Organisations (eg. BHS)
- ☐ Other horse owners
- ☐ I wouldn't seek advice
- ☐ Other (please specify)

42

Please identify along the scale how important you would deem the information provided by each of the sources **regarding this scenario**.

	I do not use this resource	I would not use this resource	I have used this resource but have not found it useful	I have used this resource and have found it useful
Nutritionists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coach/ Trainer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vets (including reception staff and nurses)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Yard owner/ manager	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physiotherapist/ Chiropractor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Own knowledge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research studies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Behaviourists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Farrier	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Magazines/ textbooks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other horse owners	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organisations (eg. BHS)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Horse Owner Recruitment Survey

Thank
you

Thank you for participating in this survey.

If you have any questions regarding the study or would like any further information you can contact either Harriet Clough or Sarah Freeman on:

Researcher: Harriet Clough – svxhc1@nottingham.ac.uk

Supervisor: Sarah Freeman - svzslf@nottingham.ac.uk

For further updates on the project you can also follow our social media pages:

Facebook: <https://www.facebook.com/nottinghamcolic>

Twitter: @Notts_Eq_Colic

If you would be willing to participate in a further face-to-face interview please leave your contact email below.

Thank you again for completing our survey. Your responses are very important in the success of the study and are greatly appreciated.

Harriet Clough

43

Please leave the best email to contact you on regarding the future research interviews. *Your personal data will only be used for research purposes and will not be shared.*

Appendix 2:

Recruitment survey question changes:

Question number	Question	Change	Reason
Q2	Add question	If you are interested in participating in future interviews, please leave the best email to contact you on. <i>Your personal data will only be used for research purposes and will not be shared. (Please note the interviews are for UK residents only)</i>	Allows people to volunteer for the interviews at the beginning and end of the survey.
Q3 -> Q4	If you are happy to do so please tell us your age:	Free text box	Suggested to go up to 70+ and so there would be lots of options
Q4 -> Q5	If you are happy to do so, please provide us with the first part the postcode for your home address (eg. LE12) this will enable us to identify the region you are located.	If you are happy to do so, please provide us with the first part of the postcode for your home address (eg. LE12) this will enable us to identify the region you are located. (If you live outside of the UK please state the country that you live in)	If there were any participants outside of the UK.
Q5 -> Q6	Please specify the relationship you have to the horse (s) in your care. Please tick all that apply.	Remove the Owner + rider option	As able to tick all that apply
Q6 -> Q7	Please state any equine related qualifications that you	Add college course examples and an	



	have. Please tick all that apply.	instructing/ coaching qualification option	
Q8 -> Q10	Average time spent with horse (s) each day ? <i>Please specify to the nearest hour</i>	What best describes the time you spend with your horse(s)? Free text box removed and replaced with 8 options (see appendix)	Allows more sufficient analysis of the question
Q14 -> Q9	Are you affiliated with/ a member of any equine societies – tick all that apply	Add British Groom Association Move question to after the qualifications	
Q12 -> Q14	Please state the number of horses you have previously kept/ owned:	Please state the number of horses you have previously kept/ owned: (This is the total number of horses you've owned or kept not including the horses currently in your care)	Better clarification of what the question is asking
Q13 -> Q15	Please state the total number of horses have you purchased/ owned. (If unknown please leave blank)	Considering your answers to Q12 and Q13: From the total number of horses you have owned/ kept, how many of these have you personally purchased?	Better clarification of the question
Q15 -> Q16	Have you had any veterinary treatment for your horse (s)?	From the different types of veterinary treatment below: Please select all the treatments you have had experience with for the horses you have owned/ cared for. Yes or no options changed to 6 different options (see appendix) Removal of Q16	Allows better analysis of what experience with veterinary treatment the participant has had. Q15 and Q16 combined into one question
Q18 -> Q17	Have you had any of your horses put to sleep that you have owned or cared for?	Have you had any of your horses (euthanised)?	Rewording of the question so that it can be understood better

Q19	What is the location of the owner of the horse? (If different to your information previously given) <i>Please provide the first part of the post code (eg. LE12) so we can identify the region that the owner is located.</i>	Please provide us with the first 4 characters of the postcode for the area in which your horse is kept (eg. LE12). <i>This will be kept confidential and only used for research purposes.</i>	Change to location of the horse rather than owner as more relevant information.
Q21 -> Q22	Which group best describes the breed of your horse?	Add Sports horse group - Move TBx, WBx, ID x into that group	
Q23	Please state the length of ownership of the horse in it's current home. <i>Please specify to the nearest 0.5 of a year eg. 3.5 years</i>	Please state the length of ownership of the horse. Please specify to the nearest 0.5 of a year eg. 3.5 years	
Q24.	Please select the option that best describes your horse's routine management:	Please state who takes day-to-day responsibility for your horse. - 6 options (see appendix)	
Q27 -> Q26	What is the main activity you carry out with your horse? <i>If more than one horse please refer to the main horse that you care for.</i>	What is the main activity carried out by your horse? <i>If more than one horse please refer to the main horse that you care for.</i>	As the owner and rider may do different things with the horse
Q28	Where did you purchase your horse from? <i>If more than one please refer to the main horse that you care for.</i>	Add Auction, Rescue charity/ centre, on loan/ shared, Lease	The questionnaire isn't only targeted at people who own horses.
Q29	Please estimate the total amount you spent on your horse in the last year? (eg. on feed, livery, tack, training, farrier, vet treatment, competition entry costs etc.)	Please estimate the total amount you spent on your horse in the last 12 months? (eg. on feed, livery, tack, training, farrier, vet treatment, competition entry costs, insurance etc.)	Pilot group said that 12 months was better than a year – more likely to calculate the amount if done in months
Q30	Add in question	If your horse is insured, please state	

		the amount your horse is insured for regarding veterinary treatment: <i>If your horse is not insured please insert a '?' into the box.</i>	
Q30 -> Q31	Please estimate the amount you spent on veterinary treatment for your horse in the last year?	Please estimate the amount you spent on veterinary treatment for your horse in the last 12 months?	
Q32 -> Q33	For the top 3 areas that you spend the most money on you and your horse. Please estimate how much was spent on each of the areas in the last 12 months?	Remove question	Time consuming and more relevant for interviews.
Q35, 36, 37, 38	Remove Scenario 1 and 2		More useful for the interviews
Q34 and Q36	Please indicate where you would source information from first in this situation.	In your opinion which is the most important source of information that could be used in this scenario?	Change direction of question to gain understanding of what owners deem the most important resource in a similar situation.
Q34 and Q37	Please identify along the scale how important you would deem the information provided by each of the sources regarding this scenario	Please identify along the scale how useful you find these sources of information regarding this type of scenario.	Change direction of the question to understand what resources are used and how useful they are
Q38	Add question	Please leave the best email to contact you on regarding the future research interviews. <i>Your personal data will only be used for research purposes and will not be shared.</i>	

Q39	Add question	If you have changed your mind and would like to opt out of participating in the face-to-face interviews please tick yes.	
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Appendix 3: Final owner recruitment survey

 
<h2>Horse-Human Relationship</h2>
<p>Introduction</p> <p>Hello,</p> <p>My name is Harriet Clough and I am a 4th year vet student studying at the School of Veterinary Medicine and Science at the University of Nottingham. I am currently intercalating my studies with a one year Masters of Research project which is being kindly supported by The Horse Trust. The aim of my research is to establish a better understanding on the horse-human relationship through the investigation of factors which could have an impact upon horse owner decision making during specific ownership events.</p> <p>The first stage of this study is to identify the current characteristics of horse owners, their relationship to horses and how they seek information relating to a variety of equine related topics. With this in mind I would like to ask if you would be willing to complete the following short survey which should take no longer than 10-15 minutes to complete. This survey is open to all those who own or care for horses and other equines on a regular basis and are over 18 years of age.</p> <p>The second stage of my research involves recruiting horse owners who would be willing to participate in two short face-to-face interviews which will be exploring the decision making process relating to various stages of horse ownership in more detail. If you would be willing to participate in these interviews please provide your contact email below. Participation in all aspects of this research is entirely voluntary and there is no obligation to take part.</p> <p>This research study has been approved by the School of Veterinary Medicine and Science's ethics committee. The information I collect will be presented in my Masters thesis and possibly used for publication and research presentations at conferences or meetings. All responses will be anonymised and no contact details will be passed on to any other persons or third party organisations. All data will be securely stored by the researcher.</p> <p>Your help is very important to the success of this study, so we would appreciate your time and interest. Further information about the study can be obtained by contacting Harriet Clough or Sarah Freeman on:</p> <p>Researcher: Harriet Clough – svxhc1@nottingham.ac.uk</p>

Supervisor: Sarah Freeman - svzslf@nottingham.ac.uk

Many thanks in advance for participating in this survey,

Harriet Clough



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Horse-Human Relationship

Consent

This consent form is a formal way of indicating that you agree to participate in this study and that you understand that any information collected by the researchers:

- will be used for a research study
- may be written in a report for publication
- may be presented at research conferences or meetings
- will be anonymous and treated confidentially
- will be securely stored and will only be accessed by research colleagues or examiners

As a participant in this survey, you may:

- request to see a copy/summary of the completed study
- request to see any information written down/kept during the process of data collection

1 If you are willing to participate in this study, please complete the following consent section.

- ☐ I have read and understood the relevant information regarding consent and agree to the terms laid out for my participation in this study.
- ☐ I confirm I am of 18 years of age or over

2 If you are interested in participating in future interviews, please leave the best email to contact you on. *Your personal data will only be used for research purposes and will not be shared. (Please note the interviews are for UK residents only)*



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Horse-Human Relationship

Participant information

For the purpose of this study the term 'horse' will be used throughout the survey. This term includes horses, ponies, donkeys and any other equids that you may care for.

3 If you are happy to do so, please tell us your gender. Your responses will be anonymous.

- ☐ Male
- ☐ Female
- ☐ Transgender
- ☐ Non-binary
- ☐ Prefer not to say

4 If you are happy to do so please tell us your age:

5 If you are happy to do so, please provide us with the first part of the postcode for your home address (eg. LE12) this will enable us to identify the region you are located.

(If you live outside of the UK please state the country that you live in)

6

Please specify the relationship you have to the horse (s) in your care. Please tick all that apply.

- ☐ Owner
- ☐ Trainer
- ☐ Sharer
- ☐ Loan
- ☐ Yard manager/ owner
- ☐ Groom
- ☐ Rider
- ☐ Other (please specify)

7

Please state any **equine** related qualifications that you have. Please tick all that apply.

- ☐ No formal qualifications
- ☐ Pony Club Tests
- ☐ BHS stage exams
- ☐ College course eg. BTEC level 2 Horse care etc.
- ☐ Undergraduate degree eg. animal science, veterinary science etc.
- ☐ Postgraduate degree
- ☐ Instructing/ coaching qualification
- ☐ Other (please specify)

8

Please identify any **academic** (non equine) qualifications that you have. Please tick all that apply.

- ☐ GCSE/ O level/ National 5s
- ☐ A level/ International Baccalaureate/ Highers/ Advanced Highers
- ☐ BTEC
- ☐ GNVQ
- ☐ Diplomas
- ☐ Foundation degree
- ☐ Batchelor degree
- ☐ Masters
- ☐ PhD
- ☐ N/A
- ☐ Other (please specify)

9

Are you affiliated with/ a member of any equine societies? Please tick all that apply.

- ☐ British Horse Society
- ☐ A Breed Society
- ☐ British Dressage
- ☐ British Eventing
- ☐ British Show Jumping Association
- ☐ British Show Horse Association
- ☐ British Driving Society
- ☐ Veteran Horse Society
- ☐ A Riding Club
- ☐ Pony Club
- ☐ British Groom Association
- ☐ Other (please specify)

10

What **best** describes the time you spend with your horse(s)?

- ☐ I spend all of my time with my horse(s) (At least 8 hours every day, including weekends)
- ☐ I spend most of my time with my horse(s) (between 4 and 7 hours every day, including weekends)
- ☐ I spend a lot of time with my horse(s) (between 2 and 3 hours each day on weekdays and more at weekends)
- ☐ I spend a fair amount of time with my horse(s) (up to 2 hours each day in the week and more at weekends)
- ☐ I spend time with my horse at weekends only
- ☐ I spend time with my horse a couple of times a month
- ☐ I spend time with my horse 3 - 4 times a year
- ☐ I don't really spend time with my horse

11

This question is looking at the horse-human relationship: Please indicate along the scale how you view the relationship with your horse(s)

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I consider my horse(s) to be pets	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I consider my horse(s) to be working animals (eg. For competition, breeding, financial gain etc)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Working with horses is my profession	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Horses are a hobby/passion of mine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I consider my horse(s) to be part of my family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I consider my horse(s) to have a soul	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- 12 By moving the slider to your preferred position, please indicate where you would rank yourself regarding your experience with horses.

Please click on the slider for your answer to register.

No experience (0) Expert (10)

- 13 Please state the number of horses you **currently** keep/ own:

- 14 Please state the number of horses you have **previously** kept/ owned:
(This is the total number of horses you've owned or kept not including the horses currently in your care)

- 15 Considering your answers to Q12 and Q13:

From the total number of horses you have owned/ kept, how many of these have you personally purchased?

- 16 From the different types of veterinary treatment below:
Please select **all** the treatments you have had experience with for the horses you have owned/ cared for.

- ☐ I have had no veterinary treatment for any of the horses in my care.
- ☐ Routine treatment eg. vaccinations or dental treatment.
- ☐ Investigation of a non-emergency condition during normal working hours.
- ☐ Investigation of an emergency condition during normal working hours.
- ☐ Investigation of an emergency condition out of hours.
- ☐ Referral to a specialist referral veterinary practice.

- 17 Have you had any of your horses put to sleep (euthanised)?

- ☐ Yes
- ☐ No

18 Please tell us how you got involved with horses?



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Horse-Human Relationship

Horse Information

Please answer the following questions in regards to information about your horse.
(If you have more than one please refer to the **main horse** that you care for.)

- 19 Please provide us with the first 4 characters of the postcode for the area in which your **horse** is kept (eg. LE12).

This will be kept confidential and only used for research purposes.

- 20 What is the age of the horse?

Please state to the nearest 0.5 of a year eg. 11.5 years.

- 21 What is the sex of your horse?

- ☐ Stallion
☐ Gelding
☐ Mare

—

22 Which group best describes the breed of your horse?

- ☐ Donkey/ mule
- ☐ Miniature pony eg. Miniature Shetland, Shetland, Falabella etc.
- ☐ Pony eg. Welsh section A, B, C, Native, Connemara etc.
- ☐ Arab type eg. Arab, Arab x, Anglo-Arab etc.
- ☐ Cob type eg. Welsh Cob, Cob, Cob x, Welsh Section D etc.
- ☐ Thoroughbred type eg. TB, Quarter Horse, Standard Bred etc.
- ☐ Sports horse type eg. ISH, TBx, WBx, IDx etc.
- ☐ Warmblood type eg. KWPN, Oldenburg, Trakehner, Andalusian etc.
- ☐ Heavy breed eg. Shire, Clydesdale, Suffolk Punch etc.
- ☐ Other (please specify)

23 Please state the length of ownership of the horse.

Please specify to the nearest 0.5 of a year eg. 3.5 years

24 Please state who takes day-to-day responsibility in caring for your horse:

- ☐ Yourself
- ☐ Family members
- ☐ Friends/ other horse owners
- ☐ Paid help
- ☐ Yard staff where horse is kept eg. livery
- ☐ Other (please specify)

25

Please select which best describes the **current role** of your horse:

- ☐ Competition work only
- ☐ Competition work and leisure riding
- ☐ Competition work and breeding
- ☐ Leisure riding only
- ☐ Leisure riding and breeding
- ☐ Breeding only
- ☐ Retired
- ☐ Non-ridden companion
- ☐ Other (please specify)

26

What is the **main** activity carried out by your horse?

If more than one horse please refer to the main horse that you care for.

- ☐ Dressage
- ☐ Show-jumping
- ☐ Eventing
- ☐ Showing
- ☐ Hunting
- ☐ Driving
- ☐ Horseball
- ☐ Racing/ point-to-point
- ☐ Polo
- ☐ Endurance
- ☐ Breaking in/ training
- ☐ Hacking
- ☐ Schooling
- ☐ Western
- ☐ Vaulting
- ☐ Companion - grooming, handling etc.
- ☐ Other (please specify)

27

Does your horse have a passport?

- ☐ Yes
- ☐ No
- ☐ Do not know

28

Where did you obtain your horse from?

If more than one please refer to the main horse that you care for.

- ☐ Dealer - someone whose main income is from buying and selling on horses.
- ☐ Professional producer - someone whose main income is from producing and selling **young** horses.
- ☐ Private seller - someone whose main income is **not** from the buying and selling of horses.
- ☐ Riding school
- ☐ Breeder - someone whose main income is from the breeding and selling of horses
- ☐ Auction
- ☐ A rescue charity/ centre
- ☐ On loan/ shared
- ☐ Lease
- ☐ Other (please specify)

29

Please estimate the total amount you have spent on your horse in the **last 12 months?**

(eg. on feed, livery, tack, training, farrier, vet treatment, competition entry costs, insurance etc.)

30

If your horse is insured, please state the amount your horse is insured for regarding **veterinary treatment:**

If your horse is not insured please insert a '?' into the box.

31

Please estimate the amount you have spent on veterinary treatment for your horse in **the last 12 months?**

32

Please estimate the amount you are **willing to spend** on veterinary treatment for your horse per year?

33

Please identify along the scale how you budget for your horse in the following areas.

If you have more than one horse please refer to the main horse in your care.

	I do not spend any money on this	I have a contingency fund for this	I have a fixed budget for this	I have an unlimited budget for this
Training (of horse and/or rider)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Competition entry fees	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tack/ accessories	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Farriery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feed supplements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physiotherapist/ Chiropractor/ Osteopath	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Veterinary treatment (including vaccinations)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Behaviourists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Livery (feed, bedding, grass management and stabling)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Insurance (including BHS insurance)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Preventative healthcare (eg. worming, dentistry)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Transport (cost of running/hiring transport)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Society membership (eg. BHS, BE, BSJA etc)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feed, bedding, grass management on your own yard	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



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Horse-Human Relationship

Information sources

For the each of the following scenarios please indicate the information source you deem the most important in regards to the scenario. Then please tell us for each of the information resources how useful you find or have found them in regards to situations similar to that in the scenario.



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Horse-Human Relationship

Scenario 1

Your horse is eating and drinking normally and nothing has changed in his daily routine (feed, stable management, grazing etc.) However you are concerned that your horse is losing condition and is reluctant to work forward in the school.

34

In your opinion which is the most **important** source of information that could be used in this scenario?

- ☐ Nutritionists
- ☐ Coach/ Trainer
- ☐ Vets (including practice reception and nurses)
- ☐ Internet
- ☐ Yard owner/ manager
- ☐ Physiotherapist/ Chiropractor
- ☐ Own knowledge
- ☐ Research studies
- ☐ Behaviourists
- ☐ Farrier
- ☐ Magazines/ textbooks
- ☐ Organisations (eg. BHS)
- ☐ Other horse owners
- ☐ Feed/ Tack shop
- ☐ No action taken
- ☐ Other (please specify)

35

Please identify along the scale how **useful** you find these sources of information regarding this type of scenario?

	I have not considered this resource	I have considered this resource but not used it	I have used this resource but have not found it useful	I have used this resource and have found it useful	I will always go to this resource
Nutritionists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coach/ Trainer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vets (including reception staff and nurses)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Yard owner/ manager	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physiotherapist/ Chiropractor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Own knowledge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research studies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Behaviourists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Farrier	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Magazines/ textbooks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other horse owners	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feed/ tack shop	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organisations (eg. BHS)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



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Horse-Human Relationship

Scenario
2

Your horse has recently started bucking in the school and is reluctant to move forward out on a hack. He has becoming increasingly more difficult to handle on the ground. He often tries to barge out of the stable and has started to bite.

36

In your opinion which is the most **important** source of information that could be used in this scenario?

- ☐ Nutritionists
- ☐ Coach/ Trainer
- ☐ Vets (including practice reception and nurses)
- ☐ Internet
- ☐ Yard owner/ manager
- ☐ Physiotherapist/ Chiropractor
- ☐ Own knowledge
- ☐ Research studies
- ☐ Behaviourists
- ☐ Farrier
- ☐ Magazines/ textbooks
- ☐ Organisations (eg. BHS)
- ☐ Other horse owners
- ☐ Feed/ Tack shop
- ☐ No action taken
- ☐ Other (please specify)

37

Please identify along the scale how **useful** you find these sources of information regarding this type of scenario?

	I have not considered this resource	I have considered this resource but not used it	I have used this resource but have not found it useful	I have used this resource and have found it useful	I will always go to this resource
Nutritionists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coach/ Trainer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vets (including reception staff and nurses)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Yard owner/ manager	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physiotherapist/ Chiropractor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Own knowledge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research studies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Behaviourists	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Farrier	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Magazines/ textbooks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other horse owners	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feed/ tack shop	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organisations (eg. BHS)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



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Horse-Human Relationship

Thank you

Thank you for participating in this survey.

If you have changed your mind and would be willing to participate in a further face-to-face interview please leave your contact email below. If you have left your email at the start of the questionnaire but would no longer like to participate in the interviews please tick the box below.

If you have any questions regarding the study or would like any further information you can contact either Harriet Clough or Sarah Freeman on:

Researcher: Harriet Clough – svxhc1@nottingham.ac.uk

Supervisor: Sarah Freeman - svzslf@nottingham.ac.uk

For further updates on the project you can also follow our social media pages:

Facebook: <https://www.facebook.com/nottinghamcolic>

Twitter: @Notts_Eq_Colic

Thank you again for completing our survey. Your responses are very important in the success of the study and are greatly appreciated.

Harriet Clough

38

Please leave the best email to contact you on regarding the future research interviews.

Your personal data will only be used for research purposes and will not be shared.

39

If you have changed your mind and would like to **opt out** of participating in the face-to-face interviews please tick yes.

☐ Yes

Appendix 4: Participant consent form



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Dear Participant,

I am a 4th year vet student studying at the School of Veterinary Medicine and Science at the University of Nottingham. I am currently intercalating my studies with a one year Masters of Research project which is being kindly supported by The Horse Trust. The aim of my research is to establish a better understanding of the horse-human relationship through the investigation of factors which could have an impact upon horse owner decision making during specific ownership events.

The first stage of this study is to identify the current characteristics of horse owners, their relationship to horses and how they seek information relating to a variety of equine related topics. You have already completed the online questionnaire and from this you have expressed an interest in participating in two further interviews.

The interviews will be exploring the decision making process relating to various stages of horse ownership in more detail. The first interview will be carried out in January and will be exploring your experiences of buying a horse and preventative healthcare. The second interview will then be scheduled for a convenient time for you and will be exploring when and why you seek veterinary or other professional intervention for your horse and your experiences of equine end of life decisions. The interviews will be recorded and transcribed for data analysis purposes and all data will remain anonymous and be securely stored.

Participation in all aspects of this research is entirely voluntary. There is no obligation to take part and you are able to stop your participation at any time. Each participant is required to complete the study consent form and must be 18 years of age or older. This research study has been approved by the School of Veterinary Medicine and Science's ethics committee. The information I collect will be presented in my Masters thesis and possibly used for publication and research presentations at conferences or meetings. All responses will be anonymised and no contact details will be passed on to any other persons or third party organisations. All data will be securely stored by the researcher.

Your help is very important to the success of this study, so we would appreciate your time and interest. Further information about the study can be obtained by contacting Harriet Clough or Sarah Freeman.

Researcher: Harriet Clough – svxhc1@nottingham.ac.uk

Supervisor: Sarah Freeman - svzslf@nottingham.ac.uk

Many thanks in advance for your participation in the study,

Harriet Clough

Participant Consent Form

Study Title: Exploring the Horse-Human Relationship and factors influencing horse owner decision making.

Researchers/ Interviewers Name: Harriet Clough

University Supervisors: Professor Sarah Freeman, Dr Mandy Roshier, Dr John Burford, Professor Gary England

Please read the following information and sign to confirm your participation within this study:

- I have read the information sheet provided and understand the purpose of this research study,
- I understand my involvement within this research and agree to take part in this and subsequent interviews,
- I understand that all questions are optional and I can withdraw from the study at any time,
- I understand that all recorded information gathered during the interviews will be securely stored and only accessed by the above researcher and supervisors,
- Although information collected during the study may be published at a later date, I understand that I will remain anonymous,
- I have been informed and understand that if I require any further information in regards to the interview or study that I can contact the above researcher or supervisors,
- I have been informed and understand that I may contact the University of Nottingham School of Veterinary Medicine and Science Ethics Committee, if I have any concerns in relation to my involvement within this research,

Participant Signature:

.....

Print Name:

.....

Date:

.....
.....

Appendix 5: Interview schedules 1 and 2 changes

Interview Schedule 1

Changes to the interview schedule after piloting are highlighted in red

	Question	Prompts	Additional questions
Introduction	Go through questionnaire transcripts: - Q6. Relationship to horses in your care? Removal of question - Q11. Horse-human relationship - Scenarios?	Why do you ... that your horse is a pet, a working animal, part of the family and has a soul?	
Motivations	How did you initially get involved with horses? Removal of question	Refer back to survey transcript if needed	• Have you always been involved with horses or have you ever had a break from owning horses?
			• If only recently involved with horses – why have you decided to get involved with horses now?
	Do you enjoy being a horse owner? What do you think are the benefits to you of being a horse owner?	Do you feel there are any benefits of being a horse owner?	• What do you enjoy the most about owning horses? • What do you enjoy about owning horses?
	What do you think are the disadvantages to you of being a horse owner?	- What do you not enjoy about owning horses? - How does owning a horse impact the rest of your life? - Do you find anything difficult?	

		- Does anything worry you with regards to owning a horse?	
	<p>Why did you decide to purchase your own horse rather than loan or share a horse?</p> <p>Why did you decide to purchase your most recent horse?</p>	<p>Did you consider other options - loan, share, lease, and rescue?</p>	<p>Have you always been involved with horses or have you ever had a break from owning horses?</p> <p>If only recently involved with horses – why have you decided to get involved with horses now?</p>
Experiences	<p>Please could you tell me the process you went through when you purchased your most recent horse?</p> <p>Thinking about the most recent horse you purchased, why did you decide to purchase this horse?</p> <p>What were the most important considerations you had during the purchasing decision?</p> <p>How long did it take you to find and purchase your new horse?</p> <p>Did you seek any advice or help when making the purchase decision?</p>	<p>Why did you decide to purchase a new horse?</p> <p>What were the most important considerations you had during the purchasing decision?</p> <p>How long did it take you to make a decision?</p> <p>Did you seek any advice or help when making purchasing decisions? If so from who/ where did you seek this advice?</p> <p>Did you have a fixed budget to spend? Did you exceed the budget set for the horse? If so why? What factors were involved in the decision?</p> <p>What was the most important</p>	

	<p>Did you have a fixed budget to spend?</p> <p>Taking into account your ability, needs and your horse's ability, were you happy with your purchase?</p>	factor for you when purchasing a new horse?	
	<p>Is there anything you would do differently if you were to purchase another horse?</p> <p>With what you know now is there anything you would do differently if you were to purchase the horse again?</p>		
	<p>What advice would you give to someone who was about to purchase their first horse?</p>		<ul style="list-style-type: none"> Is there any advice/help you would have liked to have had to help with the decision making process?
	<p>Have you had any negative experiences of purchasing a horse?</p> <p>Have you ever purchased a horse that was unsuitable for your needs?</p>		
Preventative healthcare	<p>Please could you tell me what you understand by preventative healthcare?</p>	Vaccinations, worming, dentistry, weight management, annual health checks etc?	

	<p>You completed a short questionnaire on the costs of keeping your horse: What is your opinion on how much you spend on preventative healthcare a year?</p>	<p>Would you want to spend any more or any less?</p>	
	<p>What forms of preventative healthcare do you use with your horse?</p> <p>How do you plan and budget for preventative healthcare for your horse?</p>		<p>How much do you spend on preventative healthcare per year?</p>
	<p>How important do you think preventative healthcare is?</p> <p>What do you think are the most important preventative healthcare measures and why?</p> <p>What do you think are the least important preventative healthcare measures and why?</p> <p>Is there anything you would like to do on a regular basis for your horse, but you don't?</p>		
	<p>Scenario Q:</p> <ul style="list-style-type: none"> - Purchase of a new 		

	<div>horse with no worming history</div> <div>Remove question</div>		
--	---	--	--

Interview 2

Changes to the schedule after piloting will be in red

	Question		Prompts
Professional intervention	Q1.	In the case of an unexpected event happening to your horse , there are a range of different professionals that can give you advice regarding your horse. For the following professionals, please could you tell me how you decide when to go to them for help with your horse? <ul style="list-style-type: none"> - Coach/ trainer - Yard owner/ manager - Physio and other therapists - Vets - Farrier - Saddle fitter 	<ul style="list-style-type: none"> - Is the cost of the professional important to you? - How easy is it to access or get advice from these professionals?
	Q2.	Do you think the different professionals work well together?	
	Q3.	When would you call the vet ahead of any other professional?	
Euthanasia	Q4.	Please could you tell me how you came to the decision that it was the right time to have your horse put to sleep?	<ul style="list-style-type: none"> - Did you consider the horses QoL and how important was that to you? - What was the reason for euthanasia? - How did the relationship you had with your horse influence the decision? - How do you think making the decision would change if you had a less/ more difficult/ different horse?
	Q5.	Did you talk to others about making the decision?	

	Q6.	Were there any difficult factors you wish you didn't have to consider when making this decision?	Examples: practicalities, cost, use of the horse, age of the horse etc
	Q7.	If you are happy to do so, please could you describe how you felt after having your horse put to sleep? Has this changed the relationship you have with your current horse/ horses?	- Short term feelings - Long term feelings – reflection back on the decision
	Q8. Q10	Have you come across or did anyone share with you the resources available from The BHS and their Friends at the end campaign, the blue cross including their pet bereavement support service and World Horse Welfare and their Just in Case campaign?	- It is an extremely difficult subject to talk about. Have you any suggestions on how we could get people talking about it more?
	Q9. Q11	When do you start thinking about planning for when you may have to make a critical decision regarding your current horse? Do you wait for something to happen or have you thought ahead and have a plan in place in case something happens?	
	Q10. Q12	What advice would you give to others that are going through the same experience you went through?	

Extra questions added:

Now Q8. Where you there when you had your horse put to sleep?

Now Q9. Did you want to talk about your decision when you made it?

Q13. Is there anything else you would like to discuss

Appendix 6: Final interview schedule purchasing and preventative healthcare

Interview Schedule

Thank you for your participation in this interview and the study so far. I'm going to be asking you some questions about your motivations and experiences of purchasing your most recent horse and preventative healthcare. I'm interested in your learning about your views and experiences to help with my research. I will be recording the conversation and if you have any questions at all during the conversation don't hesitate to ask.

	Question		Prompts
Introduction	Q1.	Horse-human relationship question: Discuss participant's answers from questionnaire transcript.	Why do you (participant answer)... - That your horse is a pet? - That your horse is a working animal? - That your horse has a soul?
Motivations	Q2.	Why did you decide to purchase your most recent horse?	- Have you always been involved with horses or have you ever had a break from owning horses? - If only recently involved with horses – why have you decided to get involved with horses now? - Did you consider other options - loan, share, lease, and rescue?
	Q3.	What do you think are the benefits to you of being a horse owner?	- What do you enjoy about owning horses?
	Q4.	What do you think are the disadvantages to you of being a horse owner?	- What do you not enjoy about owning horses? - How does owning a horse impact the rest of your life? - Do you find anything difficult?

			- Does anything worry you with regards to owning a horse?
Experiences	Q5.	Thinking about the most recent horse you purchased, can you tell me the reasons why you purchased this horse?	
	Q6.	What were the most important considerations you had during the purchasing decision?	
	Q7.	How long did it take you to find and purchase your new horse?	
	Q8.	Did you seek any advice or help when making purchasing decisions?	- If so from who/ where did you seek this advice?
	Q9.	Did you have a fixed budget to spend?	- Did you exceed the budget set for the horse? - If so why? - What factors were involved in the decision?
	Q10.	With what you know now, is there anything you would do differently if you were to purchase the horse again?	
	Q11.	Taking into account your ability, needs and the horses ability, were you happy with your purchase?	
	Q12.	Have you ever purchased a horse that was unsuitable for your needs?	- If yes – why was the horse unsuitable and what did you do about the situation? - If no – what would you consider as an unsuitable horse that would require rehoming/ reselling?
Preventative healthcare	Q13.	You completed a short questionnaire on the costs of keeping your horse: What is your opinion on how much	Would you want to spend any more/ less?

		you spend on preventative healthcare a year?	
	Q14.	How do you plan and budget for preventative healthcare for your horse?	- If plan – how did you create the plan and what does it entail? - If don't plan – why do you not use a plan?
	Q15.	What do you think are the most important preventative healthcare measures and why?	
	Q16.	What do you think are the least important preventative healthcare measures and why?	
	Q17.	Is there anything you would like to do on a regular basis for your horse, but you don't?	
	Q18.	Are there any resources that you would find useful to help with a structured preventative healthcare plan?	

Appendix 7: Final interview schedule professional intervention and euthanasia

Interview schedule 2

Thank you for your participation in this second interview. I'm going to be asking you some questions about your experiences and opinions of professional intervention and euthanasia. I understand that euthanasia can be an extremely sensitive and upsetting topic and if at any time you would like to stop or you would like me to call you back, I'm more than happy to do so. Again I will be recording the conversation and if you have any questions at all please don't hesitate to ask.

	Question		Prompts
Professional intervention	Q1.	In the case of an unexpected event happening to your horse. There are a range of different professionals that can give you advice regarding your horse. For the following professionals, please could you tell me how you decide when to go to them for help with your horse? <ul style="list-style-type: none"> - Coach/ trainer - Yard owner/ manager - Physio and other therapists - Vets - Farrier - Saddle fitter - Dentist 	<ul style="list-style-type: none"> - Is the cost of the professional important to you? - How easy is it to access or get advice from these professionals?
	Q2.	Do you think the different professionals work well together?	
	Q3.	When would you call the vet ahead of any other professional?	
Euthanasia	Q4.	Please can you tell me how you came to the decision that it was the right time to have your horse put to sleep?	<ul style="list-style-type: none"> - Did you consider the horses QoL and how important was that to you? - What was the reason for euthanasia? - How did the relationship you had with your

			<p>horse influence the decision?</p> <ul style="list-style-type: none"> - How do you think making the decision would change if you had a less/ more difficult/ different horse?
	Q5.	Did you talk to others about making the decision?	<p>Yes – who did you speak to</p> <p>No - why did you not talk to others?</p>
	Q6.	Were there any difficult factors you wish you didn't have to consider when making this decision?	Examples: practicalities, cost, use of the horse, age of the horse etc
	Q7.	<p>If you are happy to do so, please could you describe how you felt after having your horse put to sleep?</p> <p>Has this changed the relationship you have with your current horse/ horses?</p>	<ul style="list-style-type: none"> - Short term feelings - Long term feelings – reflection back on the decision
	Q8.	Where you there when you had your horse put to sleep?	<p>If no why did you decide not to be there?</p>
	Q9.	Did you want to talk about your decision when you made it?	<p>Yes- who did you talk to?</p> <p>No – why didn't you want to talk about it?</p>
	Q10.	Have you come across or did anyone share with you the resources available from The BHS and their Friends at the end campaign, the blue cross including their pet bereavement support service and World Horse Welfare and their Just in Case campaign?	<ul style="list-style-type: none"> - It is an extremely difficult subject to talk about. Have you any suggestions on how we could get people talking about it more?

	Q11.	When do you start thinking about planning for when you may have to make a critical decision regarding your current horse? Do you wait for something to happen or have you thought ahead and have a plan in place in case something happens?	<ul style="list-style-type: none"> - What is your plan if you have one? - What are your reasons for not having a plan?
	Q12.	What advice would you give to others that are going through the same experience you went through?	
		Is there anything else you would like to discuss?	



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Horse-Human Relationship Interview

Dear Participant,

Thank you for your participation in my research so far. You have now been invited to participate in two interviews exploring your decision making processes in several aspects of horse ownership.

Prior to the interview taking place I would like to invite you to fill out this short survey on your current preventative healthcare practices and how much you spend in various areas regarding you and your horse. These answers will then be discussed further during your interview.

Your time is so greatly appreciated and your participation is so valuable to the success of the study. If you have any further questions please don't hesitate to use the contact emails below:

Researcher: Harriet Clough – svxhc1@nottingham.ac.uk

Supervisor: Sarah Freeman - svzslf@nottingham.ac.uk

Kind regards,

Harriet Clough



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Horse-Human Relationship Interview

Consent

This consent form is a formal way of indicating that you agree to participate in this study and that you understand that any information collected by the researchers:

- will be used for a research study
- may be written in a report for publication
- may be presented at research conferences or meetings
- will be anonymous and treated confidentially
- will be securely stored and will only be accessed by research colleagues or examiners

As a participant in this survey, you may:

- request to see a copy/summary of the completed study
- request to see any information written down/kept during the process of data collection

1 If you are willing to participate in this study, please complete the following consent sections.

- ☐ I have read and understood the relevant information regarding consent and agree to the terms laid out for my participation in this study.
- ☐ I confirm I am of 18 years of age or over.

2 Please state your participant number.



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Horse-Human Relationship Interview

For the purpose of this study the following definitions will be used:

Physiotherapist - the restoration of movement and function using physical manipulation and exercise.

Chiropractor - Manual therapy at specific anatomical points that induce a physiological change and restore joint motion.

Osteopath - a way of detecting, treating and preventing health problems by moving, stretching and massaging a horse's muscles and joints.

Nutritional supplement - an addition to the horses feed used to improve performance or treat or prevent health problems.

- 3 For the following preventative healthcare measures, please use the drop down box to indicate which best describes how frequently you use them for your horse:

Frequency of use

Faecal worm egg
count
(sample collection
and send off to
laboratory for
analysis)

Administration of a
wormer

Pasture
management
(including poo
picking, pasture
rotation, harrowing
etc.)

Tapeworm ELISA
(saliva sample
taken by yourself or
your vet and sent to
a laboratory for
analysis)

Frequency of use

Dentistry
(Performed by vet
or equine dental
technician)

Vaccination
(for equine
influenza and
tetanus)

Farriery
(Including trimming
and shoeing)

Physiotherapist,
osteopath or
chiropractor

Feed supplements
(Any addition to
your horses feed
that may improve or
enhance
performance or treat
underlying
conditions)

Behaviourist

Blood test
(General health
screen taken and
analysed by the vet)

Health check
carried out by vet
(including checking
temperature, heart
rate and respiratory
rate)

Health check
carried out by
yourself
(including checking
temperature, heart
rate and respiratory
rate)

Body condition
score
(including palpation
of neck, back and
rump and compared
to a published
scoring system)



Horse-Human Relationship Interview

Spending costs

For each of the following areas please estimate how much you spent on you and your horse in the **last 12 months**.

If you do not spend any money on an area please state a '0' in the box. If you are unsure as to how much you spend please put a '?' in the box.

4

Preventative Healthcare

Worm management
(including faecal
worm egg counts,
pasture management
and wormer
administration)

Dentistry
(rasping of teeth)

Vaccination
(equine influenza and
tetanus)

Farriery
(trimming and
shoeing)

Physiotherapist,
osteopath or
chiropractor

Feed supplements

Behaviourist

5

Management costs

Livery

(feed, bedding, grass
management and
stabling)

Feed, bedding and

grass management on
your own yard

Tack and accessories

(including new
purchases and repair)

Insurance

(including rider, horse,
transport, tack etc.)Non routine veterinary
treatment(excluding routine
vaccinations and
rasping of teeth)

6

Competition costsTraining of horse
and/or riderCompetition entry
feesSociety membership
(eg. BHS, BE, BSJA,
BD)

Transport

(cost of running/ hiring
transport)



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Horse-Human Relationship Interview

Thank
you

Thank you for completing this short survey.

Your participation is so greatly appreciated and is so important for the success of the study.

I look forward to discussing the results in the interview and learning more about you and your horse.

Thank you again for your help.

Yours Sincerely,

Harriet Clough

Appendix 9: Question types

Section		Question		Question type
3	Participant demographics	2	If you are happy to do so, please tell us your age	Closed
		3	If you are happy to do so, please tell us your gender	Open – free text response
		4	Please provide us with the country you are currently a resident of:	Closed
		5	On the scale below please indicate where you would rank yourself regarding your confidence of providing day-to-day management and care for a horse:	Closed - VAS
		6	What best describes your time spent with horses	Closed
		7	Which of the following management practices best describes the management of your horse(s)?	Closed
		8	Which professionals do you seek advice / training from on a regular basis? (every 6 months or more frequently)	Closed
		9	Please state the number of horses you have loaned, leased, rescued or had sole responsibility for in the last 5 years :	Open – free text response
		10	Have you ever purchased a horse?	Closed
4	Pre-purchase decisions	11	Please state the total number of horses you have purchased	Open – free text response
		12	When was your most recent horse purchased?	Open – free text response
		13	What were your reasons for wanting to purchase your most recent horse?	Closed
		14	What requirements / characteristics of the horse were important to you when looking for a horse to purchase?	Closed – 4 point Likert scale
		15	Purchasing a horse is often a difficult decision to make. Which of the following did you consider prior to viewing and purchasing your horse?	Closed
		15a	Which of the following financial commitments did you consider?	Closed – 4 point Likert scale
		15b	Which of the following time commitments did you consider?	Closed – 4 point Likert scale

		15c	Which of the following considerations did you have regarding the horse's ability to carry out it's function?	Closed – 4 point Likert scale
		16	Prior to purchasing the horse please rank how important to you the following factors were regarding you and the horse	Closed – 4 point Likert scale
		17	There are several decision processes involved in purchasing a horse. For the following processes please state how confident you felt in making the decision:	Closed – 4 point Likert scale
		18	Who did you seek advice from to assist you in your purchasing decision?	Closed - matrix
		19	Did you have a plan for how long you were expecting to care for the horse?	Closed
		19a	How long are/ were you planning on caring for the horse?	Closed
		20	Which of the following statements best describes how you plan (when, why and how?) for making an end of life decision for the horse?	Closed
	After purchase	21	For your most recently purchased horse, what function does the horse currently provide for you?	Closed
		22	For the following criteria, how well did the horse you purchased meet your pre-purchase requirements for a horse?	Closed – 4 point Likert scale
		23	How well did the horse you purchased meet your expectations for the following:	Closed – 4 point Likert scale
		24	How well did your estimates of the commitment required to care for your new horse match what has actually happened since purchase?	Closed – 4 point Likert scale
		25	On the following scale please rank how well you think you and your horse's ability match:	Closed - VAS
		26	Please rank how important the following items are to you now (since you have purchased your horse)?	Closed – 4 point Likert scale
		27	Are you happy with the horse that you purchased and would you purchase this horse again?	Closed
		28	Are there any resources that you would like to be developed to help you with purchasing decisions?	Open – free text response
		29	What do you think are the best ways to disseminate these resources?	Closed

5	Euthanasia Decisions	30	Have you had any of your horses put to sleep (euthanised)?	Closed
		31	How many horses have you had put to sleep (euthanised)?	Open – free text response
		32	When was your most recent experience of having your horse put to sleep (euthanised)?	Open – free text response
		33	Which of the following best describes the reason for euthanising your horse?	Closed
		34	How important were the following factors when making the decision to euthanise your horse?	Closed
		35	What was the age of the horse at the time of euthanasia?	Open – free text response
		36	Did your horse have any of the following characteristics at the time of euthanasia?	Closed
		37	Did you seek any advice / guidance when making the decision to euthanise your horse?	Closed
		37a	Who did you seek advice / guidance from when making the decision to euthanise your horse?	Closed
		38	Following the euthanasia of your horse it can be a very difficult experience, please rank how you related to the following statements at the time of euthanasia:	Closed – 5 point Likert scale
		39	If it has been 6 months or longer since the euthanasia of your horse, please could you rank how you now relate to the following statements:	Closed – 5 point Likert scale
		40	Are there any resources that you would like to be developed to help you with euthanasia decisions?	Open – free text responses
		41	What do you think are the best ways to disseminate these resources?	Closed

Appendix 10: Changes made to final survey

Pilot Question		Change	Reason	Final Questionnaire	
No.	Question			New No.	Question
2	Have you ever purchased a horse?	Move	Move to after participant demographics	10	Have you ever purchased a horse?
6	On the scale below please indicate where you would rank yourself regarding your experience with providing day-to-day management and care for a horse:	remove	Only confidence was relevant		
10	Are you affiliated with/ a member of any equine	remove	Not beneficial for this survey		
12	Please state the total number of horses you have purchased:	move		11	Please state the total number of horses you have purchased
13	Please state the number of horses you have loaned, leased, rescued or had sole responsibility for	reword	Please state the number of horses you have loaned, leased, rescued or had sole responsibility for in the <i>last 5 years</i> :	9	
		Add new question	Allow logic to be applied – move directly to euthanasia questions if answer no	10	Have you ever purchased a horse?
14	When was your most recent horse purchased? <i>Please state the year in which the horse was purchased in eg. 2018</i>	move		12	When was your most recent horse purchased?
15	What were your reasons for wanting to purchase a horse? Please select all that apply	Add new answer	I wanted to purchase a horse to produce from a young age	13	What were your reasons for wanting to purchase your most recent horse? Please select all that apply
16	What requirements/ characteristics of the horse were important to you when looking for a horse to purchase?	Change to answer: Breed	Include bloodlines	14	Breed/ bloodlines
17,18,19		Change to answer options	This was not important I did not think about this	15a,b,c	

			I did think about this but did not make a plan I had planned for this		
25	Which of the following statements best describes how you feel about making an end of life decision for the horse	Change to answer options	Rewording: I have a plan in place for when I have to make an end of life decision for my horse regardless of the circumstances I will start to prepare a plan when the horse becomes aged (over 15 years) I will start to prepare a plan when the horse suffers an injury or illness I am aware I may have to make an end of life decision for the horse but I don't want to think about making a plan for it I have never thought about making a plan for an end of life decision for the horse	20	Which of the following statements best describes how you plan (when, why and how?) for making an end of life decision for the horse?
26	For your most recently purchased horse, what function does the horse currently provide for you?	Add new answer	I enjoy producing horses from a young age	21	For your most recently purchased horse, what function does the horse currently provide for you?
33	Are there any resources that you would like The Horse Trust to develop to help you with purchasing decisions?	Rewording of question		28	Are there any resources that you would like to be developed to help you with purchasing decisions?
		Add new question	Include suggestions on dissemination	29	What do you think are the best ways to disseminate these resources?
37	Which of the following best describes the reason for euthanising your horse? Please refer to your most recent experience	Change in answer options	Rewording of answers: Elective euthanasia – the horse does not have a condition that requires immediate emergency euthanasia and the decision to be put to sleep can	33	Which of the following best describes the reason for euthanising your horse? Please refer to your most recent experience

			be planned and the appropriate time elected		
38	How important were the following factors when making the decision to euthanise your horse?	Add more answer options	Your horses current quality of life is compromised Your horse's future quality of life will/ may become compromised	34	How important were the following factors when making the decision to euthanise your horse?
40	Did your horse have any of the following characteristics at the time of euthanasia? Please	Answer option changes	Long term injury (>1 month duration) Short term injury (<1 month duration) Poor quality of life Injury/ illness with a low chance of horse surviving	36	Did your horse have any of the following characteristics at the time of euthanasia?
41,42	Did you seek any advice/ guidance when making the decision to euthanise your horse?	Merge question and restructure		37, 37a	
		Add new question		39	If it has been 6 months or longer since the euthanasia of your horse, please could you rank how you now relate to the following statements:
		Add new question		41	What do you think are the best ways to disseminate these resources?

Appendix 11:



Decision Making During Key Events in a Horse's Lifetime

Introduction

Hello,

My name is Harriet Clough and I am a 4th year vet student studying at the School of Veterinary Medicine and Science at the University of Nottingham. I am currently intercalating my studies with a one year Masters of Research project which is being kindly supported by The Horse Trust. The aim of my research is to establish a better understanding on the horse-human relationship through the investigation of factors which could have an impact upon horse owner decision making during specific ownership events.

The purpose of this survey is to explore the factors influencing both purchasing decisions and euthanasia decisions of a horse. We are looking for horse owners or carers who have previous experience of purchasing horses and / or euthanasia of their own horse(s) to participate. The survey is split into two parts to enable you to complete the sections which are appropriate for your experience of purchasing and euthanasia decisions.

Participation in all aspects of this research is entirely voluntary and there is no obligation to take part. I would be so grateful for your participation in this study. It should take between 10-25 minutes of your time with the option to return to the survey to complete it at a later time if necessary. The results from this study will then be shared with The Horse Trust to help horse owners with making important decisions regarding their horse.

This research study has been approved by the School of Veterinary Medicine and Science's ethics committee. The information I collect will be presented in my Masters thesis and possibly used for publication and research presentations at conferences or meetings. All responses are anonymous and all data will be securely stored by the researcher. Your help is very important to the success of this study, so we would appreciate your time and interest.

Further information about the study can be obtained by contacting Harriet Clough or Sarah Freeman on:

Researcher: Harriet Clough – svxhc1@nottingham.ac.uk

Supervisor: Sarah Freeman - svzslf@nottingham.ac.uk

Many thanks in advance for participating in this survey, and I am very grateful for any time that you can give to this study.

Harriet Clough

Participant Consent

Consent

This consent form is a formal way of indicating that you agree to participate in this study and that you understand that any information collected by the researchers:

- will be used for a research study
- may be written in a report for publication
- may be presented at research conferences or meetings
- will be anonymous and treated confidentially
- will be securely stored and will only be accessed by research colleagues or examiners

As a participant in this survey, you may:

- request to see a copy/summary of the completed study
- request to see any information written down/kept during the process of data collection

1. If you are willing to participate in this study, please complete the following consent section: * *Required*

Please select at least 2 answer(s).

- ☐ I have read and understood the relevant information regarding consent and agree to the terms laid out for my participation in this study
- ☐ I confirm I am of 18 years of age or over

Participant Demographics

In this section we would like to learn a little bit about you and your previous experience with horses.

2. If you are happy to do so, please tell us your gender: *Your responses will be anonymous.*

- ☐ Male
- ☐ Female
- ☐ Transgender
- ☐ Non-binary
- ☐ Prefer not to say

3. If you are happy to do so please tell us your age:

4. Please provide us with the country you are currently a resident of:

- ☐ UK and Ireland
- ☐ Europe (non UK and Ireland)
- ☐ USA
- ☐ Australia
- ☐ Other

4.a. If you selected Other, please specify:

5. On the scale below please indicate where you would rank yourself regarding your **confidence** of providing day-to-day management and care for a horse:

Please don't select more than 1 answer(s) per row.

	0	1	2	3	4	5	6	7	8	9	10	
I am not confident	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	I am confident in my ability to provide care for a range of different horses not just my own

6. What best describes your time spent with horses:

- ☐ I spend all of my time with horses (At least 8 hours every day, including weekends)
- ☐ I spend most of my time with horses (between 4 and 7 hours every day, including weekends)
- ☐ I spend a lot of time with horses (between 2 and 3 hours each day on weekdays and more at weekends)
- ☐ I spend a fair amount of time with horses (2 hours or less each day in the week and more at weekends)
- ☐ I spend time with horses at weekends only
- ☐ I spend time with horses a couple of times a month
- ☐ I spend time with horses 3 - 4 times a year
- ☐ I don't really spend time with horses

7. Which of the following management practices best describes the management of your horse(s)?

- ☐ DIY - own premises
- ☐ DIY livery
- ☐ Part livery
- ☐ Full livery
- ☐ Competition livery
- ☐ Grass livery

8. Which professionals do you seek advice/ training from on a regular basis? (every 6 months or more frequently) Please select all that apply

- ☐ Trainer/ coach
- ☐ Vet
- ☐ Farrier
- ☐ Yard owner/ manager
- ☐ Dentist
- ☐ Physiotherapist/ chiropractor/ other massage therapists
- ☐ Nutritionist
- ☐ None of the above
- ☐ Other

8.a. If you selected Other, please specify:

9. Please state the number of horses you have loaned, leased, rescued or had sole responsibility for in the **last 5 years**:

Please enter a whole number (integer).

10. Have you ever purchased a horse?

- ☐ Yes
- ☐ No

Part 1: Purchase Decisions

In this section we want to learn a bit about your experience of decision making *prior to purchasing* your most recent horse.

11. Please state the total number of horses you have purchased:

Please enter a whole number (integer).

12. When was your most recent horse purchased? Please state the year in which the horse was purchased in eg. 2018

13. What were your reasons for wanting to purchase your most recent horse? Please select all that apply

- ☐ I wanted to own a horse for leisure/ hobby purposes
- ☐ I wanted to be involved in a competitive sport
- ☐ I wanted the exercise and fitness involved with horses
- ☐ I wanted the companionship and to spend time with a horse
- ☐ I wanted to be involved in breeding
- ☐ I wanted to purchase a horse to produce from a young age
- ☐ I wanted to be a part of the lifestyle and culture of owning a horse
- ☐ I wanted to be involved in the social life / interaction of owning a horse
- ☐ I wanted to purchase a horse for a family member to ride
- ☐ I wanted to purchase a horse for a professional to ride and compete
- ☐ Other

- 13.a. If you selected Other, please specify:

14. What requirements / characteristics of the horse were important to you when looking for a horse to purchase?

Please don't select more than 1 answer(s) per row.

Please select at least 12 answer(s).

	Not important	Slightly important	Moderately important	Very important
Age	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Breed / bloodlines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Height	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conformation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Temperament when handled	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Temperament when ridden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Ability (eg. action and way of moving, scope over a fence etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Experience (eg. proven record)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cost of the horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Full medical history available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Full ownership history available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
You knew the previous owner / vendor of the horse prior to purchase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

15. Purchasing a horse is often a difficult decision to make. Which of the following did you consider prior to viewing and purchasing your horse?
Please select all that apply

- ☐ Financial commitments
- ☐ Time commitments
- ☐ The ability of the horse to carry out it's function
- ☐ None of the above

15.a. Which of the following financial commitments did you consider?

Please don't select more than 1 answer(s) per row.

Please select at least 5 answer(s).

	This was not important	I did not think about this	I did think about this but did not make a plan	I had planned for this
Financial commitment to the management (eg. livery, bedding, feed etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Financial commitment to preventative healthcare (eg. vaccination, farriery, worming etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Financial commitment to training and competing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Financial commitment to providing care for the horse if it had a short duration illness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Financial commitment to providing care for the horse if it had a long term injury / illness and had to be retired from work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

15.b. Which of the following time commitments did you consider?

Please don't select more than 1 answer(s) per row.

Please select at least 6 answer(s).

	This was not important	I did not think about this	I did think about this but did not make a plan	I had planned for this
Time required for daily management of the horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time required for training and competing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time willing to spend providing care for the horse if it had a short duration illness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time willing to spend providing care for the horse if it had a long term injury / illness and had to be retired from work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Balancing the time required to care for my horse alongside family commitments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Balancing the time required to care for my horse alongside work commitments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	--------------------------	--------------------------

15.c. Which of the following considerations did you have regarding the horse's ability to carry out it's function?

Please don't select more than 1 answer(s) per row.

Please select at least 2 answer(s).

	This was not important	I did not think about this	I did think about this but did not make a plan	I had planned for this
How long the horse was able to work at its required level / function	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Risk of the horse developing a future health problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

16. Prior to purchasing the horse please rank how important to you the following factors were regarding you and the horse:

Please don't select more than 1 answer(s) per row.

	Not important	Slightly important	Moderately important	Very important
What other people think about how you ride and compete your horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What other people think about how you manage and care for your horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What other people think about your horses health and welfare	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Your personal safety when caring for and riding the horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Whether your ability matches that of the horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The horse would be happy under your management regime	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The horse's quality of life when carrying out it's desired function	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The horse's quality of life if retired from it's desired function	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Your ability to provide care if your horse has a health problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17. There are several decision processes involved in purchasing a horse. For the following processes please state how confident you felt in making the decision:

	Confidence in making the decision			
	Not confident	Slightly confident	Moderately confident	Very confident
Deciding what type of horse to view	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trying the horse and deciding if it was a suitable horse for you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The process of buying the horse and organising vettings/ further tests	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If the horse was being sold at an appropriate value	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18. Who did you seek advice from to assist you in your purchasing decision?

Please don't select more than 5 answer(s) per row.

	Vet	Trainer / coach	Yard owner / manager	Other horse owners	Friends / family	I did not seek any advice
Deciding what type of horse to view	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trying the horse and deciding if it was a suitable horse for you	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The process of buying the horse and organising vettings / further tests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If the horse was being sold at an appropriate value	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

19. Did you have a plan for how long you were expecting to care for the horse?

- ☐ Yes
- ☐ No

19.a. How long are/ were you planning on caring for the horse?

- ☐ Up to a year
- ☐ 1-2 years
- ☐ 3-5 years
- ☐ 5-10 years
- ☐ For the horse's lifetime

20. Which of the following statements best describes how you plan (when, why and how?) for making an end of life decision for the horse?

- ☐ I have a plan in place for when I have to make an end of life decision for my horse regardless of the circumstances
- ☐ I will start to prepare a plan when the horse becomes aged (over 15 years)
- ☐ I will start to prepare a plan when the horse suffers an injury or illness
- ☐ I am aware that I may have to make an end of life decision for the horse but I don't want to think about making a plan for it
- ☐ I have never thought about making a plan for an end of life decision for the horse

Part 1: After purchasing your horse

In this section, we would like to know more about your experiences **after you had purchased your horse**. Please answer the following questions based on how you currently feel about the horse that you have most recently purchased.

21. For your most recently purchased horse, what function does the horse currently provide for you? Please tick all that apply

- ☐ I own a horse for leisure / hobby purposes
- ☐ I enjoy being involved in a competitive sport
- ☐ I enjoy the exercise and fitness involved with horses
- ☐ I enjoy the companionship and time spent with a horse
- ☐ I am involved in breeding from my horse
- ☐ I enjoy producing horses from a young age
- ☐ I enjoy being part of the lifestyle and culture of owning a horse
- ☐ I am involved in the social life / interaction of owning a horse
- ☐ I enjoy owning a horse for a family member to ride
- ☐ I enjoy owning a horse for a professional to ride and compete
- ☐ Other

21.a. If you selected Other, please specify:

22. For the following criteria, how well did the horse you purchased meet your pre-purchase requirements for a horse?

Please don't select more than 1 answer(s) per row.

	Fully met my requirements / original plans	Partially met my requirements / original plans	Did not meet my requirements / original plans	This was not something I considered pre-purchase
Age	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Breed / bloodlines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Height	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conformation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cost of the horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Full ownership history available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Full medical history available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
You knew the previous owner / vender of the horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

23. How well did the horse you purchased meet your expectations for the following:

Please don't select more than 1 answer(s) per row.

	Worse than expected	Fully met my expectations	Better than expected	Did not have expectations for this
Ability (eg. action and way of moving, scope over a fence etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Temperament of the horse when handled	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Temperament of the horse when ridden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

24. How well did your estimates of the commitment required to care for your new horse match what has actually happened since purchase?

Please don't select more than 1 answer(s) per row.

	Less than expected	As expected	More than expected	Not applicable
Financial commitment to the management (eg. livery, bedding, feed etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Financial commitment to preventative healthcare (eg. vaccination, farriery, worming etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Financial commitment to training and competing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Financial commitment to providing care for the horse if it had a short duration illness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Financial commitment to providing care for the horse if it had a long term injury / illness and had to be retired from work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time required for daily management of the horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time required for training and competing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time required for providing care for the horse if it had a short duration illness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time required for providing care for the horse if it had a long term injury / illness and had to be retired from work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Balancing the time required by my horse alongside family commitments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Balancing the time required by my horse alongside work commitments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How long the horse was able to work at its required level / function	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Risk of the horse developing a future health problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

25. On the following scale please rank how well you think you and your horse's ability match:

Please don't select more than 1 answer(s) per row.

	0	1	2	3	4	5	6	7	8	9	10	
Our abilities do not match	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Our abilities match perfectly

26. Please rank how important the following items are to you now (since you have purchased your horse)?

Please don't select more than 1 answer(s) per row.

	Not important	Slightly important	Moderately important	Very important
What other people think about how you ride and compete your horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

What other people think about how you manage and care for your horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What other people think about your horses health and welfare	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Your personal safety when caring for and riding your horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Whether your ability equals that of your horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Your horse is happy under your management regime	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Your horse's quality of life when carrying out it's desired function	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Your horse's quality of life if retired from it's desired function	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Your ability to provide care if your horse has a health problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

27. Are you happy with the horse that you purchased and would you purchase this horse again?

- ☐ Yes I am happy and I would purchase this horse again
- ☐ No I am not happy and I would not purchase this horse again
- ☐ Yes I am happy but I would not purchase this horse again
- ☐ No I am not happy but I would purchase this horse again

28. Are there any resources that you would like to be developed to help you with purchasing decisions?

29. What do you think are the best ways to disseminate these resources? Please select all that apply

- ☐ Online articles
- ☐ Magazine articles
- ☐ Leaflet/ factsheet
- ☐ A series of online owner education sessions/ programmes leading to an ownership qualification
- ☐ Series of talks / practical sessions leading to an ownership qualification
- ☐ Individual talks/ seminars through vet practices, riding clubs or pony clubs
- ☐ Phone app
- ☐ On social media
- ☐ Check list to aid decision making

Part 2: Experience of euthanasia decisions

In this section, we would like to know more about your experiences with euthanasia and how you came to your decision to have your horse euthanised.

30. Have you had any of your horses put to sleep (euthanised)?

- ☐ Yes
- ☐ No

Part 2: Experience of euthanasia decisions

31. How many horses have you had put to sleep (euthanised)?

32. When was your most recent experience of having your horse put to sleep (euthanised)? Please state the year in which the horse was euthanised eg. 2018

33. Which of the following best describes the reason for euthanising your horse? Please refer to your most recent experience

- ☐ Elective euthanasia - the horse does not have a condition that requires immediate emergency euthanasia, and the decision to be put to sleep can be planned and the appropriate time elected
- ☐ Humane destruction - horse sustains an injury or manifests an illness or disease that is so severe as to warrant immediate destruction to relieve incurable and excessive pain and that no other options of treatment are available to that horse at that time.

34. How important were the following factors when making the decision to euthanise your horse?

Please don't select more than 1 answer(s) per row.

	Not important	Slightly important	Moderately important	Very important
The horse's ability to carry out its desired function	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The age of the horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The cost of caring for the horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The horse's previous medical history	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The temperament of the horse when handled	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The temperament of the horse when ridden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What other people thought about your decision to euthanise your horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Your horse's current quality of life is compromised	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Your horse's future quality of life will / may become compromised	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

35. What was the age of the horse at the time of euthanasia?

Please enter a whole number (integer).

36. Did your horse have any of the following characteristics at the time of euthanasia? Please select all that apply

- ☐ Long term injury (>1 month duration)

- ☐ Short term injury (< 1 month duration)
- ☐ Unable to perform desired function
- ☐ Problems with temperament when ridden
- ☐ Problems with temperament when handled
- ☐ Poor quality of life
- ☐ Injury / illness with a low chance of the horse surviving

37. Did you seek any advice/ guidance when making the decision to euthanise your horse?

- ☐ Yes
- ☐ No

37.a. Who did you seek advice/ guidance from when making the decision to euthanise your horse? Please select all that apply

- ☐ Vet
- ☐ Family members
- ☐ Friends/ other horse owners
- ☐ Yard owner/ manager
- ☐ Other equine professionals eg. physiotherapist, farrier, behaviourist, nutritionist
- ☐ Other

37.a.i. If you selected Other, please specify:

38. Following the euthanasia of your horse it can be a very difficult experience, please rank how you related to the following statements at the time of euthanasia:

Please don't select more than 1 answer(s) per row.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I was confident that euthanasia was the best/ right decision for my horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I was confident it was the right time to euthanise my horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt relief as my horse was no longer suffering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt relief from the worry of caring for my horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt I had done everything I could for my horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt I had no other option than to euthanise my horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt guilty that I had ended my horse's life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I grieved for the loss companionship	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I grieved for the change in lifestyle / social interactions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt I had a responsibility to be there for the horse in it's final moments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt there were enough resources and support to make the decision	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would make the same decision again for my horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

39. If it has been **6 months or longer** since the euthanasia of your horse, please could you rank how you now relate to the following statements:

Please don't select more than 1 answer(s) per row.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I am confident that euthanasia was the best/ right decision for my horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am confident it was the right time to euthanise my horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I feel relief as my horse was no longer suffering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I feel relief from the worry of caring for my horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I feel I had done everything I could for my horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I feel I had no other option than to euthanise my horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I feel guilty that I had ended my horse's life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I grieve for the loss companionship	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I grieve for the change in lifestyle / social interactions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would make the same decision again for my horse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

40. Are there any resources that you would like to be developed to help you with euthanasia decisions?

41. What do you think are the best ways to disseminate these resources? Please select all that apply

- ☐ Online articles
- ☐ Magazine articles
- ☐ Leaflet/ factsheet
- ☐ A series of online owner education sessions/ programmes leading to an ownership qualification
- ☐ Series of talks / practical sessions leading to an ownership qualification

- ☐ Individual talks/seminars through vet practices, riding clubs or pony clubs
- ☐ Phone app
- ☐ On social media
- ☐ Check list to aid decision making

Thank you

Thank you for participating in this survey.

If you have any questions regarding the study or would like any further information you can contact either

Harriet Clough or Sarah Freeman on:

Researcher: Harriet Clough – svxhc1@nottingham.ac.uk

Supervisor: Sarah Freeman - svzslf@nottingham.ac.uk

For further updates on the project you can also follow our social media pages:

Facebook: <https://www.facebook.com/nottinghamcolic>

Twitter: [@Notts_Eq_Colic](https://twitter.com/Notts_Eq_Colic)

Thank you again for completing our survey. Your responses are very important in the success of the study and are so greatly appreciated.

Harriet Clough
