

What is Welfare? A Qualitative Study in the Dutch Equestrian Community

by

Frances le Belle

A thesis presented in partial fulfilment of
the degree of Master of Veterinary Medicine

Summary

Introduction: Horse welfare is an important topic in the Netherlands, mirroring horses' significance in sports, recreation, and therapy. Despite numerous academic courses and equestrian bodies offering equine education, a knowledge gap persists, often attributed to the absence of comprehensive welfare education for non-academic horse enthusiasts. To address this, the Stichting Rijvaardigheidsbewijzen Ruiters en menner (SRR) has commissioned an equine welfare certificate, the PaardenWelzijnsBewijs (PWB), aiming to impart fundamental knowledge for safeguarding equine welfare. While existing literature broadly captures equine welfare concerns, research focused on Dutch horse enthusiasts is sparse. This thesis employs qualitative methods to identify what horse enthusiasts in the Netherlands consider essential for equine welfare.

Methods: A digital survey comprising open questions on equine husbandry, riding, and handling was disseminated via social media and the SRR network. Survey data were analysed qualitatively using thematic coding and quantitatively using Chi-squared tests.

Results/discussion: The survey received 875 complete responses, resulting in a 74.0% completion rate. The majority of respondents were female (85.9%) and fell within the age groups of 35-44 (23.4%) or 45-54 (28.7%). Thematic analysis led to the identification of three major themes: Equine Husbandry, Human-Horse Interaction, and Equitation. Equine Husbandry was more frequently mentioned, suggesting its importance over training or interaction aspects to horse enthusiasts. Within this broad theme, subthemes like the ability to perform natural behaviour and feeding were most prominent. On the theme of Human-Horse Interaction, respondents highlighted the importance of understanding horse behaviour and human-horse communication to ensure their welfare, as well as ethical considerations for treating horses as sentient beings deserving respect. On the theme of Equitation, training of the rider and of the horse were mentioned most frequently, as well as knowledge of tack and equipment. Respondents emphasised the importance of qualified instruction on subjects of horse care and welfare. Quantitative analysis revealed significant differences across the variables of gender, age, and type of involvement with various subthemes related to horse husbandry, interaction, and training. Specifically, women and younger age groups were more likely to discuss the subthemes natural behaviour, feeding, and training of the horse.

Conclusion and implications: This study revealed three main areas of interest to Dutch horse enthusiasts regarding equine welfare: Equine Husbandry, Human-Horse Interaction, and Equitation, with the greatest emphasis on husbandry practices. Despite evident awareness of a wide variety of welfare aspects among equestrians, a gap between knowledge and practice persists, pointing to the need for research to facilitate better application of welfare principles. The insights in this study can be used to further research into horse enthusiasts' behaviour concerning equine welfare.

Introduction

Horse welfare has become an increasingly important topic in the public debate in the Netherlands (LTO, 2023; SRP, 2023; Visser & Van Wijk-Jansen, 2012) and internationally (e.g. Furtado et al., 2021; Heleski, 2023). This growing concern is understandable, given the significant role horses play in society, such as in sports and recreation, participating in a wide range of activities from competitive racing and dressage to leisure riding (Campbell, 2021; Holmes & Brown, 2022; Skinner et al., 2019). Additionally, the integration of horses in therapeutic practices highlights their profound impact on human well-being, further elevating the importance of safeguarding their welfare (White-Lewis, 2020). Horse owners play a critical role in safeguarding equine welfare, with responsible husbandry and training practices that are aligned with the intrinsic needs of horses being essential in maintaining horses' well-being (Hemsworth et al., 2015). The knowledge and care provided by humans directly influences the quality of life and welfare of these animals. However, studies indicate that there is a lack of awareness and understanding among horse owners regarding appropriate management practices (Hemsworth et al., 2015; Visser & Van Wijk-Jansen, 2012). This knowledge gap is critical, as it is likely to directly affect the quality of life and well-being of the horses. Furthermore, the concept of 'social licence to operate' becomes increasingly relevant in this context (Douglas et al., 2022; Furtado et al., 2021; Heleski et al., 2020). This social licence hinges on the public's perception that horses are treated with respect, and that their welfare is a paramount concern (Heleski, 2023). Thus, the equestrian sector faces the challenge of not only enhancing equine welfare through education but also actively fostering positive public perception to secure its social license to operate.

A number of previous studies have used qualitative techniques to determine what those who work with horses consider the most important welfare issues (see Table 1). A study analysing in-depth interviews of industry professionals and leisure riders categorised welfare problems according to health-related, management-related, and riding- and training-related welfare problems (Horseman et al., 2016). Health-related problems most commonly discussed were horses being under- and overweight, foot problems (e.g. abscesses or horses with overgrown hooves), internal parasites, and laminitis. The most prevalent management problems were stabling horses 24 hours a day, under- or overfeeding, inappropriate rugging, limited access to water, and social isolation. Riding- and training-related welfare problems mentioned were inappropriate use of training aids and poorly fitting tack (Horseman et al., 2016). Another study investigating perceived welfare problems at the individual horse level by equine professionals in Canada found that horses being denied access to important psychological or physical resources, together with inappropriate drug use, were the most important issues (DuBois et al., 2018). Other aspects that were ranked relatively high were lack of proper professional care, inappropriate training practices, lack of knowledge or education, overpopulation, and improper dietary practices (DuBois et al., 2018). Using the Five Domains Framework, McGreevy et al. (2018) assessed expert's perception of horse welfare across different categories. They identified key concerns including abrupt weaning, exclusive concentrate feeding, isolated indoor tie-stalls, forced flexion of the neck (i.e. Rollkur or hyperflexion), constrictive nosebands, ear twitches, and transportation with unfamiliar horses as the most significant risks to equine welfare (McGreevy et al., 2018).

In a study asking equine experts in the UK about key welfare issues, many aspects of horse management and horse use were mentioned (Rioja-Lang et al., 2020). The key problems involved inadequate biosecurity measures, not recognising pain or discomfort, use of ill-fitting or restrictive tack, unsuitable training methods, and housing horses in conditions that do not meet their physical, nutritional, and behavioural welfare needs (Rioja-Lang et al., 2020). In a similar study, conducted in Ireland, major equine welfare issues were identified during the display and trading of horses at unregulated gatherings such as fairs, and the gathering, transport (especially abroad) and actual slaughter of horses (Collins et al., 2010). A study concerning perception of horse welfare at shows mentioned training aspects like excessive jerking on the reins, excessive spurring, induced excessive unnatural movement, excessively repetitious aid or practice, and excessive continued pressure on the bit to be most prevalent welfare issues (Voigt et al., 2016). A study exploring welfare in the British racing industry, involving stakeholders like trainers, stable staff, and veterinarians across the UK, highlighted eight key themes (Butler et al., 2019). Among these, the most pivotal were health, training, and physical comfort. Specific challenges within the topic of health included overuse of veterinary interventions and repetitive injuries. Training concerns were inadequate recovery time for horses post-race. The study also emphasised individualised care and innovative veterinary treatments as important factors in racehorse welfare. Staff management issues were also mentioned, especially concerning lack of knowledge (Butler et al., 2019).

Table 1: Summary of Research on Perceived Equine Welfare Concerns

| Study | Country | Key Equine Welfare Concerns |
|-------------------------|------------------------------------|--|
| Butler et al., 2019 | UK | Health issues, untrained or incompetent staff, poor horse husbandry, overuse of veterinary interventions, rushed recovery after racing, over-training. |
| Collins et al., 2010 | Ireland | Horses at unregulated gatherings, disposal process of horses. |
| DuBois et al., 2018 | Canada | Denied access to resources, inappropriate drug use. Other concerns: lack of professional care, improper training, lack of education, overpopulation, dietary issues. |
| Horseman et al., 2016 | UK | Health issues: under/overweight, foot problems, parasites, laminitis. Management issues: stabling, feeding, rugging, water, social isolation. Training issues: misuse of training aids, poorly fitting tack. |
| McGreevy et al., 2018 | Australia, Canada, Ireland, UK, US | Abrupt weaning, exclusive concentrate feeding, isolated stalls, forced neck flexion, tight nosebands, ear twitches, traveling with unfamiliar horses. |
| Rioja-Lang et al., 2020 | UK | Inadequate biosecurity, not recognizing pain or discomfort, ill-fitting or restrictive tack, unsuitable training methods, poor housing conditions. |

Equestrian bodies and educational institutes across the world have been trying to address the potentially negative implications of such a lack of knowledge for years by offering a wide variety of equine related courses and modules (Shivley et al., 2016). As a result, there has been a substantial increase in (academic) courses, ranging from further education to postgraduate level (see for example courses offered by the Aeres Training Centre in the Netherlands (2023)). For individuals not interested in pursuing an academic career however, any educational initiatives have either focused on the technical aspects of riding or driving, or highly specific topics such as hoof trimming or equine massage therapy (e.g. Hollander, 2023; Toorn, 2023). More recently –and perhaps as a result of the increasing societal pressure to safeguard the well-being of horses, the idea of offering certificates tailored specifically to teaching aspects of welfare to horse enthusiasts has taken hold (Roest & van der Wielen, 2012). In France, this has resulted in the introduction of a mandatory knowledge and welfare certificate for horse owners who are not members of the national equestrian federation (LOI n° 2021-1539, 2021).

Despite the Netherlands having an important horse culture, with an estimated 293.500 horses kept for recreational, sporting, and breeding purposes (World Horse Welfare, 2015), there exists a gap in recent, targeted research addressing the perspectives on equine welfare of Dutch horse enthusiasts (Visser & Van Wijk-Jansen, 2012). In the Netherlands, the Stichting Rijvaardigheidsbewijzen Ruiters en menner (SRR) is the only independent examination institute issuing riding and driving certificates since 1977 (SRR, 2023). While the associated exams traditionally include aspects relating to equine welfare, the main emphasis has been a focus on the skills and knowledge necessary to ride and drive safely when out on the road or on bridle paths. Considering the importance of taking a more holistic approach to equine welfare, as well as the close link between rider safety and equine welfare (Luke et al., 2022), the SRR recently commissioned Van Hall Larenstein University of Applied Sciences to develop an equine welfare certificate (PaardenWelzijnsBewijs, PWB). The PWB aims to ensure that horse enthusiasts possess the fundamental theoretical and applied knowledge necessary to be able to safeguard the welfare of the horse(s) under their care.

However, equine welfare is a broad term, ranging from the very basics to detailed veterinary knowledge. So what is the level of knowledge that is required to ensure a workable level of welfare? What is more, in order to ensure sufficient motivation and engagement among horse enthusiasts, the PWB needs to be relevant and applicable to riders' and horse owners' daily routines. Therefore, it is essential to determine which aspects of equine welfare horse enthusiasts deem important. This will help identify which subjects receive enough attention and areas where awareness for horse welfare could be improved. This thesis aims to draw on qualitative data to gain a more comprehensive understanding of this subject. The primary aim is to better understand what these individuals consider essential for horse welfare, with the concurrent goal of developing a framework of key themes and subjects for the PWB.

Methods

Survey Design and Distribution

The survey consisted of a total of 12 questions and posed open questions concerning equine husbandry, riding and driving, and horse handling (see appendix A). In addition to qualitative data, demographic information of respondents (gender, age, and type of involvement with horses) was gathered in order to identify factors that may contribute to welfare perception. Regarding their involvement with horses, participants had the option to provide open-text responses. These responses were subsequently reviewed and systematically categorised into one of the predefined categories for analysis.

The survey was developed by Van Hall Larenstein and conducted digitally from the 27th of April to the 21st of August 2023 using SurveyMonkey, an online survey platform (SurveyMonkey Inc., California, USA). The survey link was shared through social media channels and the social network of the SRR. All respondents were assigned unique numerical identifiers to ensure anonymity, and any personally identifiable information was removed from the data set prior to analysis. The survey was conducted according to the Netherlands Code of Conduct for Research Integrity.

Data Analysis

Data were imported into SPSS (IBM Corp., Armonk, NY, USA) to obtain descriptive statistics, such as frequencies and proportions for the available categorical data. Because the aim of this survey was to gain an in-depth understanding of important subjects concerning equine welfare according to horse enthusiasts, a general inductive approach to the data was taken (Thomas, 2006). However, a degree of deductive reasoning was also applied, as the survey questions were structured based on certain preconceived notions, such as those pertaining to horse husbandry or handling of horses. This design choice was made to provide respondents with a guiding framework, ensuring that the data collected was both comprehensive and relevant.

For the qualitative analysis, the responses were imported into NVivo (QSR International, Melbourne, Australia) for thematic coding and analysis. As a first step, coding categories were drawn directly from words or phrases used by participants. These initial codes were refined and synthesised into more concise and descriptive terms in subsequent rounds of analysis. Subthemes were developed to encapsulate multiple topics within a broader theme that participants frequently commented on. To avoid repetition, similar answers by the same respondents across different questions were coded only once. In these cases, where multiple responses fit a particular theme, the response that most comprehensively represented that theme was selected.

After this initial process of selection and theme development, survey answers were coded manually. Coding was reviewed at intervals, approximately after every hundred responses, leading to adjustments in themes and the reassignment of previously coded data where necessary. A 'to be determined' category was set up to temporarily contain significant codes that did not clearly fit existing categories. Upon concluding the coding for each question, these provisional codes were integrated into existing categories or served as the foundation for new ones. The coding process was done in collaboration with thesis supervisor (IW), and themes were established after thorough discussion to enhance the reliability and validity of the research findings. Although data saturation is often considered a stopping point in qualitative research (Urquhart, 2022), analysis was continued even after saturation was achieved. This decision was made to allow for the examination of the frequencies of certain responses, in addition to identifying themes and patterns. Such quantitative insights would not necessarily be captured if we stopped at the onset of saturation. Thus, by extending our analysis, we aimed to provide a more comprehensive view of the subjects concerning equine welfare as perceived by horse enthusiasts.

In addition to exploring frequencies, the study examined the relationship between the demographic variables and the identified themes. By employing these methods, we aimed to provide a complementary quantitative layer to the existing qualitative data, which allows for a better understanding of how demographic variables may influence the prioritisation of welfare subthemes among horse enthusiasts. To achieve this, the frequency of each subtheme mentioned by the respondents was numerically recorded and imported into SPSS. The focus on subthemes, as opposed to main themes or descriptors, was deliberate. Main themes were considered too broad to offer meaningful insights into demographic variations, while the descriptive topics were deemed too granular for the scope of this study. Therefore, the analysis of subthemes offers a balance, facilitating a targeted yet comprehensive examination of the data. A Chi-squared test was used to examine the relationship between demographic data and specific subthemes. This test was selected over the Fisher's Exact Test due to our adequately large sample size, meeting the criteria for expected frequencies (Kim, 2017). Given these conditions, the Chi-squared test allows for more efficient computational analysis. Some categories were collapsed or combined due to low sample

sizes. Initially, the statistical significance for all tests was set at $p < 0.05$. To account for the increased risk of Type I errors due to multiple testing, p-values were subsequently adjusted using a Bonferroni correction. In cases where the Chi-squared tests revealed significant associations across variables with more than two categories, post-hoc pairwise comparisons were performed to identify where the specific differences lay. In these cases, a Bonferroni correction was again employed.

Results & Discussion

The main aim of this study was to identify what horse enthusiasts consider essential elements of equine welfare. By examining various aspects of horse management, training, and interaction, this study sought to provide a comprehensive framework that could underpin the development of an equine welfare certificate (PaardenWelzijnsBevijs, PWB). The analysis has resulted in key themes and subthemes that offer insights into various perspectives on what aspects are important to safeguard horse welfare. The principal findings spanned three thematic categories: Equine Husbandry, Human-Horse Interaction, and Equitation. The following section will interpret these results in the context of existing literature and evaluate their relevance to practical applications. Additionally, limitations of the study will be discussed.

Descriptive Statistics

The survey yielded 1181 responses. Participants who only completed the demographic multiple-choice questions or who only answered the first of the open-ended questions were excluded from further analysis. This excluded 306 respondents, which meant there was a completion rate of 74.0% (875/1181).

The majority of respondents were female (85.9%), which is consistent with previous surveys on attitudes toward equine welfare (Lofgren et al., 2022; Merkies et al., 2018; Visser & Van Wijk-Jansen, 2012; Voigt et al., 2016). Several factors could explain this gender skew. Females may have a heightened interest in animal welfare, making them more likely to participate in such surveys (Heleski et al., 2006). Alternatively, the overrepresentation of females could be a reflection of their higher numbers within the horse-owning community (Bushell & Murray, 2016; Evans, 2010; Hockenull & Creighton, 2013; Smyth & Dagley, 2015). Further research could help to determine the specific reasons for the female predominance in these surveys, as understanding the underlying factors could enhance the design and interpretation of future studies on equine welfare.

Together, over half of the respondents were in the age cohorts of 35-44 (23.4%) and 45-54 (28.7%), a distribution that diverges from the general Dutch population, where these age groups each comprise approximately 12-13% of the population (Centraal Bureau voor de Statistiek, 2023). This may reflect a greater interest in equine welfare concerns amongst individuals in these age groups. However, this is not currently supported by research, as other studies into welfare have not found that these age groups were more concerned about horse welfare (Heleski et al., 2006; Ikingier et al., 2016). An alternative explanation may be due to the methodological exclusion of individuals under 18 from the survey, which skews the age distribution towards an older demographic.

Approximately half of the respondents (50.4%) were recreational riders not engaged in official competitions, while a further 21.6% participated only at a basic amateur level. A total of 21.6% of respondents listed equine industry related professions and of these, 67.6% work in the primary sector (e.g. riding school, boarding stable, breeding, training stable, or horse trade). A full overview of demographics can be found in Table 2.

Table 2: Demographic Characteristics of Respondents

| Variable | Category | Frequency | Percent (%) |
|---------------------|--|-----------|-------------|
| Gender | Male | 106 | 12.1 |
| | Non-binary | 6 | 0.7 |
| | Female | 752 | 85.9 |
| | Missing | 11 | 1.3 |
| Age | 18-24 | 81 | 9.3 |
| | 25-34 | 132 | 15.1 |
| | 35-44 | 205 | 23.4 |
| | 45-54 | 251 | 28.7 |
| | 55-64 | 150 | 17.1 |
| | 65-74 | 51 | 5.8 |
| | 75 and older | 4 | 0.5 |
| | Missing | 1 | 0.1 |
| Type of Involvement | Owner/employee of horse-related products | 4 | 0.4 |
| | Owner/employee of horse-related services | 61 | 6.6 |
| | Owner/employee of horse-related businesses | 135 | 14.6 |
| | Recreational rider with one or more horses | 465 | 50.4 |

Continued on next page

Table 2 – Continued from previous page

| Variable | Category | Frequency | Percent (%) |
|------------------|---|-----------|-------------|
| | Sport rider in basic sport | 199 | 21.6 |
| | Sport rider in Subtop and/or Grand Prix | 12 | 1.3 |
| | No own horse, ride at a riding school | 46 | 5.0 |
| | Missing | 13 | 1.5 |
| Primary Activity | Driving | 137 | 15.7 |
| | Riding | 725 | 82.9 |
| | Missing | 13 | 1.5 |

Thematic Analysis

In the course of our thematic analysis, the first author identified 53 unique codes, which were organised into a hierarchical structure consisting of 3 main themes, 11 subthemes, and 39 descriptive topics. The themes and descriptive topics were examined according to their content, and labelled with the aim of capturing the content as concisely as possible. The primary themes were: Equine Husbandry with 3216 references, mentioned by 96% of respondents; Human-Horse Interaction with 1971 references, mentioned by 90% of respondents; and Equitation with 1407 references, mentioned by 80% of respondents. Detailed descriptions of subthemes with their respective descriptive topics can be found in Appendix B. Frequencies and absolute counts are listed in Table 3.

Responses pertaining to Equine Husbandry were more prevalent than those concerning the other two main themes within the survey. This could signify a sentiment among horse enthusiasts that husbandry practices are more important for equine welfare than aspects of training or interaction with the horse. This perspective is supported by research which suggests that the welfare of recreational and sport horses is primarily influenced by husbandry and management practices (Fletcher et al., 2021; Hemsworth et al., 2015; McBride & Mills, 2012), as well as horse enthusiasts' perception that improving training practices may yield lesser welfare benefits compared to enhancements in overall management (Furtado et al., 2021). At the same time, the question asking participants about husbandry aspects was the first in the survey, which could have led respondents to give it more attention than subsequent questions. This would be in line with primacy effect, which shows that proportionally more attention is paid to information presented first (Peterson & DuCharme, 1967). For a balanced understanding of equine welfare, it is essential to acknowledge that along with husbandry, proper human-horse interaction and training practices are equally critical, as corroborated by various studies highlighting their significant impact on the well-being of horses (Hausberger et al., 2008; Luke et al., 2022; McLean & Christensen, 2017; Mellor et al., 2020).

Table 3: Themes, Subthemes, and Descriptive Topics with Reference Counts and Percentages

| Main Themes | Subthemes | Descriptive Topics (Frequency, Percent) |
|---------------------------------|--|---|
| Equine Husbandry (3216, 96%) | Ability to Perform Natural Behaviour (1531, 91%) | Free Movement (774, 88%) |
| | | Enrichment (46, 5%) |
| | | Physical Space (65, 7%) |
| | | Social Contact (483, 55%) |
| | | Protection Against Weather (163, 19%) |
| | Equine Care (419, 39%) | General (137, 16%) |
| | | Hoof Care (62, 7%) |
| | | Veterinary Care (219, 25%) |
| | Feeding (781, 72%) | Concentrates and supplements (46, 5%) |
| | | Forage (469, 54%) |
| | | Water (96, 11%) |
| | Stabling (479, 39%) | Bedding (29, 3%) |
| | | Dimensions (238, 27%) |
| | | Stable Climate (191, 22%) |

Continued on next page

Table 3 – Continued from previous page

| Main Themes | Subthemes | Descriptive Topics (Frequency, Percent) |
|-------------------------------------|--|--|
| Human-Horse Interaction (1971, 90%) | Interaction Styles (498, 45%) | Calmness (72, 8%) Cooperation (220, 25%) Gentleness (206, 24%) |
| | Knowledge of Behaviour (724, 60%) | Human-Horse Communication (376, 43%) Natural Behaviour (175, 20%) Recognising Abnormalities (150, 17%) |
| | Norms and Values (496, 47%) | Patience (89, 10%) Respect (312, 36%) Sense of Responsibility (43, 5%) Trust (52, 6%) |
| | Safety (237, 24%) | Safety for the Horse (66, 8%) Safety for the Trainer (34, 4%) Safety for Off-site Environments (110, 13%) |
| Equitation (1407, 80%) | Tack and Equipment (276, 28%) | Knowledge of Tack (173, 20%) Use of Training Aids (97, 11%) |
| | Training of the Horse (559, 45%) | General (96, 11%) Groundwork (136, 16%) How a Horse Learns (75, 9%) How a Horse Moves (144, 16%) Horse Fitness or Strain (73, 8%) Training of Young Horses (35, 4%) |
| | Training of Rider or Driver (594, 53%) | Use of Cues (78, 9%) Lesson and Instruction (331, 38%) Posture, Seat, Balance (119, 14%) Rider Fitness or Weight (23, 3%) |

Equine Husbandry (3216, 96%)

Equine Husbandry emerged as one of the three central themes in this survey, incorporating four major subthemes: Ability to perform Natural Behaviour, Feeding, Equine Care, and Stabling.

Ability to Perform Natural Behaviour (1531, 91%)

The ability to perform natural behaviour was almost unanimously commented on, with a total of 1531 references (91% of respondents). The emphasis on the ability to perform natural behaviour is in line with existing animal welfare literature that considers free movement and social contact as vital for horse well-being (Hartmann et al., 2012; Krueger et al., 2021; Lesimple et al., 2020) and also aligns with several studies where respondents similarly emphasised these aspects as being critical to equine welfare (Horseman et al., 2016; Lofgren et al., 2022; Visser & Van Wijk-Jansen, 2012; Watney, 2023; Woude, 2022), as well as horse owners' belief that access to turnout and social contact make horses happier (Bornmann et al., 2021).

Within this topic, respondents considered free movement to be important, with 88% mentioning its significance. Opinions varied on what constitutes sufficient free movement for horses; while many advocated for 24/7 free movement, others suggested durations ranging from 2 to 12 hours per day. These differing opinions on the specific duration of free movement highlight the need for more nuanced recommendations, potentially customised to individual horse or human needs, thereby avoiding a one-size-fits-all approach to welfare education. Access to pasture was often mentioned as a preference over paddocks, with some respondents introducing the concept of alternative designs like tracks or paddock paradises. Respondents also indicated that horses should have access to free movement year-round, including during winter months. This is important, as research indicates that horses in the Netherlands have less access to free movement during the winter (Woude, 2022). The use of paddocks during winter months, especially when pastures are too wet, was a frequent suggestion by respondents. In line with this, respondents highlighted the necessity for a dry area to stand, especially when conditions are wet. Participants also commented on the quality of the space provided, emphasising the need for ample space in paddocks or pastures that allow for natural behaviours like galloping and rolling. This consideration is important,

as research suggests that horses housed in larger paddocks display increased movement and foraging activity, and less time passively standing (Jørgensen & Bøe, 2007). Such a behavioural pattern is more congruent with their natural behaviour, underscoring the significance of providing adequate space for horses. Importantly, respondents felt the area should be large enough to offer horses the room to distance themselves from conspecifics when desired. A good lying area for comfort and well-being was also considered essential. Protection against sun and inclement weather was another frequently mentioned requirement, with (artificial) shelters most often suggested as a means of protection. The importance of giving horses the choice to be inside a stable, shelter, or outside was also emphasised by respondents.

Another important topic was social contact with other horses, highlighted by 55% of respondents. The majority advocated for direct physical contact with conspecifics, but the number of recommended social companions varied, ranging from just one to at least six. This emphasis is supported by research that indicates that social contact is crucial for equine welfare (Hartmann et al., 2012; Søndergaard et al., 2011). Social isolation is also mentioned as a primary welfare concern to horse enthusiasts in other studies (DuBois et al., 2018; Horseman et al., 2016; McGreevy et al., 2018). If direct contact is not feasible, some respondents indicated that indirect contact—such as through bars or across fences— could also be acceptable. These alternatives are especially relevant for stabled horses. Importantly, many respondents expressed that social contact should be possible both at pasture and while in stabling conditions, thereby reinforcing its significance in multiple contexts. Another important aspect concerning social contact was the gradual introduction of new horses into existing groups. Some respondents mentioned the practice of having separate groups for mares and geldings and gradual introductions of new horses, as a way to ensure calmness in the group, thereby contributing to better welfare (Christensen et al., 2011).

Enrichment was occasionally mentioned (5% of respondents), often in the context of feeding, such as providing horses with slow feeders or branches and shrubs to browse. Some also linked enrichment to periods of stabling and suggested the use of straw to counteract boredom. The provision of enriched feed, incorporating a variety of forages, has been observed to engage horses in more foraging behaviour and decrease stereotypical behaviours compared to horses fed solely on hay (Thorne et al., 2005). Thorne et al. (2005) suggest that foraging enrichment fosters more natural feeding patterns in stabled horses, thereby reducing stress. This is supported by further studies which indicate that the introduction of varied edible and non-edible enrichments can lead to a reduction in stereotypical behaviour among stabled horses (Bulens et al., 2013; Whisher et al., 2011). Moreover, such enrichment strategies have been associated with decreased cortisol levels and neophobia, and an increase in the time horses spend lying down (Lansade et al., 2014). The relative lack of emphasis on enrichment by respondents highlights a potentially overlooked opportunity for advancing equine welfare.

Feeding (781, 72%)

Feeding was another crucial topic among respondents. The quality of feed was a common concern, with a dominant viewpoint advocating for unlimited access to roughage, considered vital for both health and behavioural well-being. If unlimited access to roughage was not feasible, respondents highlighted the importance of providing ample amounts of roughage as an alternative. When unlimited access was not specifically mentioned, respondents generally suggested multiple feeding sessions throughout the day—typically recommending 3-4 times daily or ensuring a maximum interval of 2-6 hours between feeds. Many showed a preference for hay over other types of roughage like silage or haylage. Some people explicitly stated that the rationale behind this preference is rooted in the perceived nutritional benefits and lower health-related risks associated with hay compared with other types of roughage. The preference for unlimited access to good-quality roughage aligns with current 'best practices' in equine nutrition (Baumgartner et al., 2020). The community's focus on these aspects not only points toward an awareness of the close link between diet and equine health, but also importantly concurs with scientific insights on the importance of roughage for welfare in horses (Coenen, Vervuert, et al., 2010; Krueger et al., 2021; Seabra et al., 2021). In addition to roughage, the importance of free access to good-quality drinking water was emphasised. This access to water was considered essential not only when the horses are stabled but also when they are out on pasture or in the paddock. The topic of concentrate feeds only mentioned by a small percentage of respondents (4%), and when it was mentioned, it was often specified that these were not necessary and could even be detrimental to equine health and well-being.

Stabling (479, 39%)

When it comes to stabling horses, dimensions were most frequently emphasised by respondents (27%). Some respondents commented that the stable should have specific dimensions such as 3 by 3 metres, but other respondents mentioned that it should be large enough to enable the horse to comfortably turn around and lie down within their stables. The height of the stable was occasionally brought up as a point of concern. An increase in

the duration that horses spend lying down has been correlated with larger stable sizes, indicating that more spacious stables may enhance welfare (Raabymagle & Ladewig, 2006). Despite this, the literature on optimal stable dimensions is sparse. Other research suggests that confinement to a stable is invariably detrimental to equine welfare, irrespective of its dimensions (Hausberger et al., 2008; Ruet et al., 2019). Given the high percentage of respondents who highlight the importance of stable size, this suggests a significant concern for equine welfare and points towards a need for more comprehensive research to establish welfare-friendly stabling standards.

Beyond dimensions, environmental conditions in the stable were also considered important, especially having adequate ventilation and a controlled temperature to create a comfortable environment for the horse. Prevention of dust in the stable was also frequently mentioned. Cleanliness of the stable and hygiene also emerged as a critical issue throughout this topic, with respondents emphasising the need for regular cleaning and clean bedding to maintain a disease-free and comfortable living space for the horse, thereby improving its welfare.

Equine Care (419, 39%)

Veterinary care and health aspects took precedence in the subtheme of Equine Care, as more than 60% of responses within this theme centred around this topic. Within this context, general knowledge about a horse's health and most common diseases were most frequently mentioned. Respondents emphasised the importance of understanding when to consult a veterinarian and how to manage minor wounds or sore spots themselves. They also expressed a desire to gain more knowledge about first aid and preventative equine health measures for their horses. Deworming was also occasionally cited within the context of veterinary care.

Grooming and saddling a horse also featured prominently in this subtheme. Knowledge of basic grooming techniques were considered essential for daily horse care and well-being. Respondents stressed the importance of being knowledgeable in saddling a horse properly, underlining the connection between proper equipment usage and both rider safety and equine comfort. Hoof care emerged as another critical area. Respondents highlighted the importance of not only knowing how to check for hoof problems and when to consult a farrier but also expressed the desire to be capable of performing basic hoof care themselves. They also emphasised the desire to be able to discern when a hoof is properly trimmed.

Conclusion Equine husbandry

This study's findings related to Equine Husbandry underline how much horse enthusiasts value good management practices. However, these findings warrant a nuanced discussion. For example, Luke et al. (2023) highlight that concentrating solely on such factors can lead to a 'welfare blind spot,' overlooking other important aspects like the horse's mental and emotional states. In the context of this study, it may be valuable to investigate further whether the high emphasis on Ability to Perform Natural Behaviour and Feeding is symptomatic of a similar welfare blind spot among respondents.

Human-Horse Interaction (1971, 90%)

Human-Horse Interaction emerged as the second major theme, with several frequently mentioned subthemes: Knowledge of Behaviour, Norms and Values, Interaction Styles, and Safety.

Knowledge of Behaviour (724, 60%)

The theme of Knowledge of Behaviour was the most frequently mentioned subtheme within the main theme of human-horse interaction, with 60% of respondents citing this. This aligns with the literature that stresses the importance of understanding horse behaviour to enhance their welfare, as well as human safety around equids (Gronqvist et al., 2017; Hausberger et al., 2008; Luke et al., 2022). The discussion centred around three key topics: Human-Horse Communication, Knowledge of Natural Behaviour, and Recognising Abnormalities in Behaviour.

Of the three, Human-horse Communication was mentioned most often by respondents (43%). This area emphasised the importance of 'speaking the horse's language,' which entailed accurately reading their mood and responding appropriately. The significance of being able to interpret the horse's signals correctly was often cited, emphasising that effective communication between horse and human is essential to respondents. This emphasis echoes current research on this topic, which identifies misinterpretation of horse behaviour as a significant welfare issue (Hall et al., 2013; Luke et al., 2022; Mellor et al., 2020). Behaviours that are considered problematic by owners, such as aggression, are often dismissed or misattributed to the horse's character (Bell et al., 2019; Luke et al., 2023; Rioja-Lang et al., 2020). The frequent mentions in the survey that a horse's reactions are not designed to frustrate humans, or that a horse who misbehaves is not 'naughty,' shows that at least some horse enthusiasts are aware of these misconceptions. However, the high incidence of hyperreactive behaviours observed in ridden horses (Luke et al., 2022), suggests that awareness alone might not be sufficient.

In the area of Recognising Abnormalities in behaviour, respondents emphasised the critical role that horse owners play in correctly interpreting signs of discomfort, illness, stress, or pain in their horses. When it comes to stress, participants highlighted the importance of recognising symptoms such as yawning, as well as stereotypic behaviours like weaving and headshaking. Health problems such as stomach ulcers were also seen as a sign that a horse is stressed. Additionally, the concept of 'calming signals' (cues or behaviours exhibited by horses to diffuse tension and promote a sense of calm or safety) was noted. Recognising these signals can be an integral part of assessing a horse's overall well-being. As for identifying pain, several key signals were noted, including behaviours like bucking or rearing when ridden, displaying signs of lameness, showing a 'pain face,' and increased sensitivity when touched in certain areas. The ability to correctly identify these abnormal behaviours was stressed as crucial for timely intervention and the maintenance of equine well-being. It was also noted by respondents that horses displaying unwanted behaviours are generally not 'bad' or trying to 'test' their handlers; rather, these behaviours usually indicate that the horse is attempting to communicate discomfort or pain. A problem with this is that overexposure to abnormal behaviours could desensitise horse owners, making it difficult to identify signs of poor well-being (Dyson et al., 2022; Lesimple & Hausberger, 2014). Furthermore, if horse owners fail to recognise these signs, they may not be motivated to address them (Fletcher et al., 2021). As such, many horse owners reportedly struggle to detect signs of stress (Fletcher et al., 2021; Rogers & Bell, 2022) or pain, such as back soreness or facial expressions (Buckley, 2008; Lesimple et al., 2013; Luke et al., 2023; Watney, 2023). The emphasis by participants on the importance of recognising pain and stress signals in horses underlines their awareness of the crucial role that horse owners play in these aspects of equine welfare.

Respondents mentioned the importance of knowledge of natural behaviour (20%). Participants' focus on understanding that a horse is a herd and flight animal shows an inclination toward acknowledging its ethological needs (Fletcher et al., 2021). This is a promising first step in accommodating these needs to promote better welfare. In a similar survey, a majority of respondents felt that horses' ethological needs were very relevant to their welfare (Fletcher et al., 2021), aligning well with our study's findings.

Norms and Values (496, 47%)

The subtheme of Norms and Values was frequently mentioned within the broader theme of Human-horse Interaction, pointing to its critical importance in equine welfare according to respondents. From this subtheme, four main topics emerged: Respect, Patience, Trust, and Sense of Responsibility.

On the topic of Respect, the importance of acknowledging that a horse is a sentient being with feelings and cognition was mentioned often. Respondents stressed that each horse is a unique individual with a distinct character, deserving of understanding and respect. Another key point was the necessity to know and respect a horse's boundaries. These comments may indicate that instead of a utilitarian ethical framework, horse enthusiasts think of the horse-human relationship as a symbiotic one, facilitating mutual friendship and emotional bonds. Additionally, respondents urged against anthropomorphising horses, stressing that horses have different needs and perceptions compared to humans. McGreevy et al. (2018) elaborate on the dangers of anthropomorphism, describing it as "unhelpful at best and may promote poor welfare at worst," especially when it inaccurately ascribes human-like motives to horse behaviour. However, anthropomorphism can also help humans to develop empathy and insight into their horse's experiences (Holmes & Brown, 2022). Given the evident significance of this issue among Dutch horse enthusiasts, further research on this topic could provide valuable insights into whether such anthropomorphic perspectives ultimately contribute to or detract from horse welfare.

Patience was also considered important in human-horse interactions, cited by 10% of respondents. Those discussing this topic emphasised not only the unfairness of rushing a horse through the learning process but also the need for humans to avoid feelings of frustration or anger during interactions. They highlighted that horses need time to acquire new skills or behaviours, and that a patient approach is essential for a successful relationship.

Trust was another key aspect, mentioned by 6% of respondents. Participants emphasised that building a trustworthy relationship with the horse is crucial for harmonious interactions and can mitigate fear and anxiety in both the rider and the horse. Another aspect that was occasionally mentioned, was a sense of Responsibility. On this topic, respondents highlighted that owning a horse is not only very time-consuming but also a significant financial commitment. Respondents mentioned that a horse requires daily care and attention, and cannot be cast aside when people lose interest, thus reinforcing the ongoing nature of the responsibility involved. These insights indicate that horse enthusiasts are aware that horse ownership and care constitute a reciprocal relationship with certain commitments.

Interaction Styles (498, 45%)

Within the theme of Interaction Styles, three descriptive topics—Cooperation, Calmness, and Gentleness—were identified, each with its own unique set of insights. Of these, cooperation was most frequently emphasised (25%),

focusing on the notion of teamwork and the importance of training the horse in a harmonious manner. This included aspects like being a leader and being able to assist the horse in stressful or difficult situations. On the other hand, respondents emphasised that cooperation with the horse should not equate to domination or forced submission. Rather, respondents advocated for asking or motivating the horse to cooperate rather than to force them into compliance. They underscored that when things go wrong, it is usually the fault of the human, not the horse.

Gentleness was another key area (24%), with participants stressing the importance of being soft in both hand and voice. The overarching sentiment was that one can be clear without being strict, and that causing pain or using violence is unacceptable. The theme of Calmness was the last in this subtheme (8%). Respondents emphasised the need to remain calm, particularly in potentially dangerous situations or when the horse does not follow commands. The ability to not only remain calm oneself but also to instil calmness in the horse was seen as crucial for ensuring a relaxed and stress-free interaction. This also ties in with respondents highlighting the value of cooperation behaviour over domination in human-horse relationships, which, according to Goodwin et al. (2009), results in a more balanced and natural interaction. The fact that respondents valued calmness and gentleness when interacting with horses is encouraging given that a lack of these qualities can have a detrimental impact on equine welfare (Hausberger et al., 2008; McLean & Christensen, 2017).

Safety (237, 24%)

Safety emerged as a diverse but frequently mentioned subtheme, encapsulating a range of concerns affecting the safety of both horses and humans. For Safety for the Horse, respondents stressed the importance of a secure environment—free from sharp edges in the stable, a safe terrain, and (daily) supervision to promptly identify injuries or illness. Measures for protecting against potential threats like wolves were also mentioned occasionally. Safety for the Human centred around the use of secure tack and proper equipment, such as appropriate footwear and headgear during riding or training sessions. Knowledge of safe handling practices, such as not walking behind a horse unexpectedly, was underscored, along with the acknowledgment that a horse will invariably be stronger and heavier than a human.

Concerning Safety for the Environment, the emphasis was on knowing traffic rules and best practices for handling horses in stressful and potentially dangerous situations. Respondents also noted that riders or drivers on public roads should be aware of the general lack of equine awareness among other road users. They also recommended always having a groom or being with more than one person when venturing out to enhance overall safety. The focus on road safety could be influenced by the composition of our sample, which included a relatively high number of drivers and individuals affiliated with the SRR network, where road safety is a central teaching element. While road safety is undeniably critical (see e.g. Pollard & Grewar, 2020, who states that over 60% of UK horse riders report having experienced a road-related near-miss or accident), its relative impact on equine welfare due to physical injury or psychological effects remains to be fully explored.

Conclusion Human-Horse Interaction

The theme of Human-Horse Interaction is essential in understanding equine welfare according to survey respondents. More than half of respondents mentioned the importance of understanding horse behaviour, which shows that people really want to understand how horses think and feel. These key findings indicate that there is a strong emphasis on the importance of understanding horse behaviour for both the well-being of the horse and human safety. Additionally, ethical considerations such as respect, patience, and trust underscore the evolving understanding of horses as sentient beings deserving of ethical treatment.

Equitation (1407, 80%)

The main theme of Equitation encompasses the practice of riding or driving horses, and within this overarching theme, three significant subthemes emerged: Training of the Rider or Driver, Training of the Horse, and Tack and Equipment. These subthemes address the elements that contribute to both rider and horse welfare, ranging from the physical gear used to the skills and knowledge required for ethical and effective training. Current research has identified multiple factors—such as exposure to unfamiliar environments (Borstel et al., 2017), physical problems such as back pain (Dyson et al., 2018; Lesimple et al., 2013), and the use of ill-fitting tack (Mellor et al., 2020) or poor training techniques (McLean & Christensen, 2017) as potential stress inducers or welfare infringements in exercising horses. It is therefore significant that this theme was frequently mentioned by respondents, highlighting the recognition of the various elements in Equitation that directly affect equine welfare.

Training of the Rider or Driver (594, 53%)

In the subtheme of Training of the Rider or Driver, Lessons and Instruction was most frequently mentioned, making up over half of the references. Respondents emphasised that the role of an instructor is to not only focus on the technicalities of riding or driving but also on establishing harmony and teamwork between horse and rider. Education in equine care, management, husbandry, and welfare was equally valued, highlighting the extensive nature of the instruction desired. The learning journey was seen as ongoing, advocating for the continuation of lessons beyond the acquisition of basic skills. The call for professional and certified instructors further underlined the importance of qualified, well-rounded guidance. This suggests that instructors could play a pivotal role in enhancing animal welfare, as it shows respondents are open to receive instruction on subjects of equine care and welfare from their riding instructor.

The concept of Cues emerged as another important topic in this subtheme. Respondents highlighted the necessity of correct posture and a quiet and independent seat to facilitate better communication and avoid hindering the horse. The use of hand and leg aids were also cited, with the emphasis on maintaining a quiet hand and leg. They often mentioned that the goal is to establish a gentle contact with the horse's mouth, and there was a clear consensus that being too forceful could lead to discomfort or pain for the horse. However, studies indicate a high incidence of oral injuries in horses due to the harsh use of bits and hand cues (e.g. Borstel et al., 2017). This suggests a gap between ideal practice and actual execution, implying a need for better education or awareness on the use of cues.

Interestingly, only a relatively small percentage (3%) of respondents discussed rider's or driver's fitness and weight, which contrasts with a study by Challinor et al. (2021) in the UK, where a majority of participants recognised the potential adverse effects of increased rider weight. Research suggests that rider weight is a significant welfare issue, as it can induce temporary lameness and behaviours consistent with musculoskeletal pain in horses (Dyson et al., 2020). This discrepancy suggests a need for increased awareness on the potential impact of rider weight on equine well-being.

Training of the Horse (559, 45%)

Another subtheme within Equitation is Training of the Horse (45%). Respondents commented on various aspects of training, such as the importance of a structured regimen that includes proper warming up and cooling down, the value of introducing variation in exercises to keep the horse engaged, and methods to encourage the horse to use its body effectively. Training was acknowledged as crucial not just for performance but also for the horse's overall well-being. This implies that respondents are aware that poor training techniques can lead to stress responses (McLean & Christensen, 2017).

Within the subtheme, understanding How a Horse Moves was also dominant focus (16%), with a concentration on knowledge of (basic) anatomy and biomechanics. Respondents believed that an understanding of how a horse moves is critical for proper training, but also for identifying health-related issues. Groundwork was another significant topic, mentioned by 16% of respondents. It was cited as foundational for establishing teamwork and harmony between rider and horse and recommended as a means of diversifying the horse's training regimen or as a starting point for new riders. Natural Horsemanship was also mentioned occasionally in this context.

How a Horse Learns was also mentioned occasionally (by 9% of respondents), where respondents highlighted the importance of understanding learning theories to be able to successfully train a horse. McLean and Christensen (2017) suggest that "the correct use of learning theory should be established as a 'first principle' in equestrian coaching," but other researchers have established that knowledge of learning theory does not necessarily equate to better welfare for the horse (Luke et al., 2023). While it is positive that some respondents appreciate the role of learning theories in horse training, research shows that knowledge alone does not guarantee improved horse welfare.

Lastly, Horse Fitness or Strain touched upon the intensity of training and how to gauge and build up a horse's fitness. This was particularly highlighted in the context of driving, as it was mentioned that the cart's weight can be too much for some horses. Respondents also noted that the age of the horse should be considered when determining the appropriate level of physical strain. The attention given to a horse's fitness and age indicates that respondents are mindful of the physiological limitations of horses, and aligns with what researchers found in other studies (Butler et al., 2019; Lofgren et al., 2022).

Tack and Equipment (276, 28%)

In the subtheme of Tack and Equipment, respondents highlighted the importance of having a comprehensive understanding of the different types available and how to use them safely to avoid causing pain or injury to the horse. Respondents highlighted the importance of properly fitting tack, aligning with other studies identifying this

as a critical welfare issue (Horseman et al., 2016; McGreevy et al., 2018; Rioja-Lang et al., 2020).

Training aids, such as whips, spurs, and auxiliary reins, were mentioned relatively often (11%), but elicited differing opinions. While some emphasised the importance of employing them correctly, a significant portion of respondents argued against their use altogether. Interestingly, there was notable sentiment against the use of bits, suggesting an emerging trend or preference among horse enthusiasts. The diverging opinions on the use of training aids point toward a growing ethical debate within the equine community, and is similar to DuBois et al. (2018) findings, who found no clear opinion on whether artificial aid use is welfare compromising or not. However, the outspoken critical stance concerning the use of auxiliary reins by some respondents resonates with increasing concerns about their use in sports and leisure activities (Hausberger et al., 2008; Horseman et al., 2016).

Conclusion Equitation

The focus on Equitation in this study highlighted three major subthemes—Training of the Rider or Driver, Training of the Horse, and Tack and Equipment. Respondents emphasised the importance of a qualified instructor who teaches aspects of equine welfare, as well as technical skills. Other important aspects were proper use of cues and individualised horse training. The diverging opinions on training aids and the relative underemphasis on rider weight, signal emerging trends and knowledge gaps. These findings underscore the need for ongoing education on these subjects.

Quantitative Analysis: Demographic Influence on Welfare Subthemes

To add depth to the analysis and assess the impact of demographics on the frequency with which themes were mentioned, we conducted a quantitative analysis. Chi-squared tests revealed significant relationships across the variables of gender, age, and type of involvement with various subthemes related to horse husbandry, interaction, and training. In the analysis, several tests yielded statistically significant results after Bonferroni correction ($p < 0.0015$). See Appendix C for an overview of the test statistics.

With respect to gender, there were significant associations in the subthemes of Ability to Perform Natural Behaviour ($\chi^2 = 47.664$, $df = 1$, $p < 0.001$), Feeding ($\chi^2 = 22.234$, $df = 1$, $p < 0.001$), and Training of the Horse ($\chi^2 = 11.708$, $df = 1$, $p < 0.001$). In each of these cases, women were more likely to mention the subject than men. Studies on attitudes towards farm animal in general and equine welfare specifically have shown that women are significantly more concerned with welfare issues than men (Heleski et al., 2006; Ikinger et al., 2016; Prickett et al., 2010; Randler et al., 2021; Visser & Van Wijk-Jansen, 2012). In contrast, Lofgren et al. (2022) have not found significant differences in the scoring of certain scenarios for equine welfare across gender.

Analysis of age groups demonstrated similar significant associations: Ability to Perform Natural Behaviour ($\chi^2 = 42.020$, $df = 5$, $p < 0.001$), Feeding ($\chi^2 = 28.339$, $df = 5$, $p < 0.001$), and Training of the Horse ($\chi^2 = 19.647$, $df = 1$, $p = 0.001$). Pairwise tests revealed that for the Ability to Perform Natural Behaviour subtheme, significant differences were found between the age group >65 and all other categories except 55-64. Specifically, respondents in the >65 category were less likely to discuss the ethological needs of horses compared to other age groups (67.3% vs. >90%). For the Feeding subtheme, the >65 age group showed the lowest percentage of concerns about feeding (49.1%) when compared to the age groups 18-24 (81.5%), 25-34 (77.3%), and 35-44 (79.5%). Finally, for the Training of the Horse subtheme, significant differences were observed between the age groups 25-34 and 55-64, with the 55-64 age group being less likely to discuss training. It is possible that these age groups are less concerned about these themes related to equine welfare. However, we should also consider that a bias could be introduced due to more limited digital skills (Braun et al., 2021). Other studies have found no significant age-related differences in the importance attributed to animal welfare (Heleski et al., 2006; Ikinger et al., 2016). Similarly, age was not included in the cluster analysis done in the study by Visser and Van Wijk-Jansen (2012), suggesting that it was not an important variable in opinions on horse welfare.

Concerning type of involvement with horses, significant associations were found in Stabling ($\chi^2 = 37.771$, $df = 5$, $p < 0.001$). Pairwise testing revealed significant differences between owner/employees of horse-related services and owners/employees of horse-related businesses, as well as recreational riders and riding school riders. Specifically, owners or employees of horse-related services were significantly less likely to mention stabling than the other groups. Differences were also noted between recreational riders and sport riders in basic sports, with recreational riders being less likely to mention stabling.

Limitations to the current study

The sampling methods used in this study could have introduced several biases that should be considered when interpreting the results. The online format of the survey may inadvertently have excluded individuals with limited literacy skills or those who lack access to digital resources (Braun et al., 2021). As previously mentioned, the significant differences we observed across age groups could be a result of this online format bias. Reliance on a web-based sampling method could also lead to an over-representation of more privileged social groups (Heiervang & Goodman, 2011). Since we did not include questions about education or income in the survey, we were unable to test this theory. Additionally, as the survey was voluntary, it likely attracted participants who already have an interest in equine welfare, potentially over- or underestimating certain opinions, similar to the study by Visser and Van Wijk-Jansen (2012) on equine welfare in the Netherlands. However, while the sample may be skewed towards certain demographics or opinions, the data still provides valuable information for understanding key aspects of the subject matter.

Interpretation bias is an inherent risk in all qualitative research due to the significant role played by the researcher in data analysis (Galdas, 2017). We have sought to minimise this effect by adhering to recommended guidelines for qualitative reviews (Braun et al., 2021), which included coding the data as one cohesive dataset (instead of summarising responses to each question separately) and employing peer-reviewed coding.

Open-ended questions pose the issue of potentially giving more prominence to respondents who provide more extensive answers. Andrews (2005) has found that male respondents and respondents over the age of 50 provide shorter answers in open question-surveys than female and young participants. In the qualitative part of our study, this was not a significant concern as the analysis was theme-based rather than volume-based. Nevertheless, this discrepancy in response length could have influenced the significant findings in the quantitative portion of our analysis.

Another limitation is the potential for availability bias, where people may focus on issues they encounter more frequently, such as through social media or within their own network. This bias could be further exacerbated by the open-ended format of the questions. For future research, combining open questions with Likert scales could allow participants to rate the importance of specific subjects, providing a more nuanced understanding. Follow-up interviews could also be considered as an additional method for data collection.

Conclusion

This study identified three core themes concerning equine welfare to Dutch horse enthusiasts: Equine Husbandry, Human-Horse Interaction, and Equitation. Equine Husbandry emerged as the most prevalent theme, which could reflect a sentiment that husbandry is most important in ensuring equine welfare. Aspects of Human-horse Interaction were also mentioned by nearly all respondents, with human-horse communication as the most important aspect, followed by respect. The focus of our participants on these topics suggest shows that people really want to understand how horses think and feel and are motivated to treat horses with respect. Concerning Equitation, respondents emphasised the importance of an instructor who is also involved with equine welfare and care. Here is an opportunity for indirectly improving welfare through education of instructors. The relative underemphasis on rider weight suggests an awareness gap of its importance in equine welfare while riding. Quantitative analysis revealed significant relationships across the variables of gender, age, and type of involvement with various subthemes related to horse husbandry, interaction, and training. Women and younger age groups were generally more likely to discuss subthemes like natural behaviour, feeding, and training of the horse.

Although this survey was not meant to test knowledge of equine welfare, the frequent mention of key aspects suggests a significant level of awareness on this subject among equestrians. On the other hand, the persistence of welfare issues implies a discrepancy between the theoretical importance of these themes and their practical application, presenting an opportunity for future research to bridge this divide.

References

- Andrews, M. (2005). Who is being heard? Response bias in open-ended responses in a large government employee survey. *A Section on Survey Research Methods*, 7, 27–28.
- Baumgartner, M., Boisson, T., Erhard, M. H., & Zeitler-Feicht, M. H. (2020). Common feeding practices pose a risk to the welfare of horses when kept on non-edible bedding. *Animals*, 10(3), 411.
- Bell, C., Rogers, S., Taylor, J., & Busby, D. (2019). Improving the recognition of equine affective states. *Animals*, 9(12), 1124.
- Bornmann, T., Randle, H., & Williams, J. (2021). Investigating equestrians' perceptions of horse happiness: An exploratory study. *Journal of Equine Veterinary Science*, 104, 103697.
- Borstel, U. K. v., Visser, E., & Hall, C. (2017). Indicators of stress in equitation. *Applied Animal Behaviour Science*, 190, 43–56.
- Braun, V., Clarke, V., Boulton, E., Davey, L., & McEvoy, C. (2021). The online survey as a qualitative research tool. *International journal of social research methodology*, 24(6), 641–654.
- Buckley, P. (2008). *Epidemiological studies of health and performance in pony club horses* [Doctoral dissertation]. University of Queensland.
- Bulens, A., Van Beirendonck, S., Van Thielen, J., & Driessen, B. (2013). The enriching effect of non-commercial items in stabled horses. *Applied Animal Behaviour Science*, 143(1), 46–51.
- Bushell, R., & Murray, J. (2016). A survey of senior equine management: Owner practices and confidence. *Livestock Science*, 186, 69–77.
- Butler, D., Valenchon, M., Annan, R., Whay, H. R., & Mullan, S. (2019). Living the 'best life' or 'one size fits all'—stakeholder perceptions of racehorse welfare. *Animals*, 9(4), 134.
- Campbell, M. L. (2021). An ethical framework for the use of horses in competitive sport: Theory and function. *Animals*, 11(6), 1725.
- Centraal Bureau voor Statistiek. (2023). Bevolking; geslacht, leeftijd en burgerlijke staat. <https://opendata.cbs.nl/statline/#/CBS/nl/dataset/7461BEV/table>
- Challinor, C., Randle, H., & Williams, J. (2021). Understanding rider: Horse bodyweight ratio trends, weight management practices and rider weight perceptions within leisure and amateur riders in the UK. *Comparative Exercise Physiology*, 17(5), 403–418.
- Christensen, J. W., Søndergaard, E., Thodberg, K., & Halekoh, U. (2011). Effects of repeated regrouping on horse behaviour and injuries. *Applied Animal Behaviour Science*, 133(3-4), 199–206.
- Coenen, M., Vervuert, I., et al. (2010). A minimum of roughage and a maximum of starch-necessary benchmarks for equine diets. *Pferdeheilkunde*, 26(2), 147–151.
- Collins, J., Hanlon, A., More, S., Wall, P., Kennedy, J., & Duggan, V. (2010). Evaluation of current equine welfare issues in Ireland: Causes, desirability, feasibility and means of raising standards. *Equine Veterinary Journal*, 42(2), 105–113.
- Douglas, J., Owers, R., & Campbell, M. L. (2022). Social licence to operate: What can equestrian sports learn from other industries? *Animals*, 12(15), 1987.
- DuBois, C., Hambly Odame, H., Haley, D. B., & Merkies, K. (2018). An exploration of industry expert perception of Canadian equine welfare using a modified Delphi technique. *PLoS One*, 13(7), e0201363.
- Dyson, S., Berger, J., Ellis, A. D., & Mullard, J. (2018). Development of an ethogram for a pain scoring system in ridden horses and its application to determine the presence of musculoskeletal pain. *Journal of Veterinary Behavior*, 23, 47–57.
- Dyson, S., Bondi, A., Routh, J., Pollard, D., Preston, T., McConnell, C., & Kydd, J. (2022). Do owners recognise abnormal equine behaviour when tacking-up and mounting? a comparison between responses to a questionnaire and real-time observations. *Equine Veterinary Education*, 34(9), e375–e384.
- Dyson, S., Ellis, A., Mackechnie-Guire, R., Douglas, J., Bondi, A., & Harris, P. (2020). The influence of rider: Horse bodyweight ratio and rider-horse-saddle fit on equine gait and behaviour: A pilot study. *Equine Veterinary Education*, 32(10), 527–539.
- Evans, V. (2010). Canadian equine industry profile study: The state of the industry. <https://www.equestrian.ca/industry/about>
- Fletcher, K., Cameron, L., & Freeman, M. (2021). Contemplating the Five Domains model of animal welfare assessment: UK horse owner perceptions of equine well-being. *Animal Welfare*, 30(3), 259–268.
- Furtado, T., Perkins, E., Pinchbeck, G., McGowan, C., Watkins, F., & Christley, R. (2021). Exploring horse owners' understanding of obese body condition and weight management in UK leisure horses. *Equine Veterinary Journal*, 53(4), 752–762.
- Galdas, P. (2017). Revisiting bias in qualitative research: Reflections on its relationship with funding and impact.

- Goodwin, D., McGreevy, P., Waran, N., & McLean, A. (2009). How equitation science can elucidate and refine horsemanship techniques. *The Veterinary Journal*, 181(1), 5–11.
- Gronqvist, G., Rogers, C., Gee, E., Martinez, A., & Bolwell, C. (2017). Veterinary and equine science students' interpretation of horse behaviour. *Animals*, 7(8), 63.
- Hall, C., Huws, N., White, C., Taylor, E., Owen, H., & McGreevy, P. (2013). Assessment of ridden horse behavior. *Journal of Veterinary Behavior*, 8(2), 62–73.
- Hartmann, E., Søndergaard, E., & Keeling, L. J. (2012). Keeping horses in groups: A review. *Applied Animal Behaviour Science*, 136(2-4), 77–87.
- Hausberger, M., Roche, H., Henry, S., & Visser, E. K. (2008). A review of the human–horse relationship. *Applied animal behaviour science*, 109(1), 1–24.
- Heiervang, E., & Goodman, R. (2011). Advantages and limitations of web-based surveys: Evidence from a child mental health survey. *Social psychiatry and psychiatric epidemiology*, 46, 69–76.
- Heleski, C. R. (2023). Social License to Operate—why public perception matters for horse sport—some personal reflections. *Journal of Equine Veterinary Science*, 104266.
- Heleski, C. R., Mertig, A. G., & Zanella, A. J. (2006). Stakeholder attitudes toward farm animal welfare. *Anthrozoös*, 19(4), 290–307.
- Heleski, C. R., Stowe, C. J., Fiedler, J., Peterson, M. L., Brady, C., Wickens, C., & MacLeod, J. N. (2020). Thoroughbred racehorse welfare through the lens of 'social license to operate—with an emphasis on a US perspective. *Sustainability*, 12(5), 1706.
- Hemsworth, L. M., Jongman, E., & Coleman, G. J. (2015). Recreational horse welfare: The relationships between recreational horse owner attributes and recreational horse welfare. *Applied Animal Behaviour Science*, 165, 1–16.
- Hockenull, J., & Creighton, E. (2013). A brief note on the information-seeking behavior of UK leisure horse owners. *Journal of veterinary behavior*, 8(2), 106–110.
- Hollander, K. (2023). Workshop masseren kun je leren. het soepele paard. <https://hetsoepelepaard.nl/workshops-verzamel/masseren-kun-je-leren/>
- Holmes, T. Q., & Brown, A. F. (2022). Champing at the bit for improvements: A review of equine welfare in equestrian sports in the United Kingdom. *Animals*, 12(9), 1186.
- Horseman, S. V., Buller, H., Mullan, S., & Whay, H. R. (2016). Current welfare problems facing horses in Great Britain as identified by equine stakeholders. *PLoS One*, 11(8), e0160269.
- Iking, C., Spiller, A., & Kayser, M. (2016). Factors influencing the attitude of equestrians towards sport horse welfare. *Animal Welfare*, 25(4), 411–422.
- Jørgensen, G. H. M., & Bøe, K. E. (2007). A note on the effect of daily exercise and paddock size on the behaviour of domestic horses (*Equus caballus*). *Applied Animal Behaviour Science*, 107(1-2), 166–173.
- Kim, H.-Y. (2017). Statistical notes for clinical researchers: Chi-squared test and Fisher's exact test. *Restorative dentistry & endodontics*, 42(2), 152–155.
- Krueger, K., Esch, L., Farmer, K., & Marr, I. (2021). Basic needs in horses?—a literature review. *Animals*, 11(6), 1798.
- Lansade, L., Valençon, M., Foury, A., Neveux, C., Cole, S. W., Layé, S., Cardinaud, B., Lévy, F., & Moisan, M.-P. (2014). Behavioral and transcriptomic fingerprints of an enriched environment in horses (*Equus caballus*). *PLoS one*, 9(12), e114384.
- Lesimple, C., Fureix, C., Biquand, V., & Hausberger, M. (2013). Comparison of clinical examinations of back disorders and humans' evaluation of back pain in riding school horses. *BMC veterinary research*, 9, 1–9.
- Lesimple, C., & Hausberger, M. (2014). How accurate are we at assessing others' well-being? The example of welfare assessment in horses. *Frontiers in psychology*, 5, 21.
- Lesimple, C., Reverchon-Billot, L., Galloux, P., Stomp, M., Boichot, L., Coste, C., Henry, S., & Hausberger, M. (2020). Free movement: A key for welfare improvement in sport horses? *Applied Animal Behaviour Science*, 225, 104972.
- Lofgren, E. A., Rice, B. M., & Brady, C. M. (2022). Exploring perceptions of equine welfare scenarios using a positive approach. *Journal of Applied Animal Welfare Science*, 25(1), 54–61.
- LOI n° 2021-1539. (2021). LOI n° 2021-1539 du 30 novembre 2021 visant à lutter contre la maltraitance animale et conforter le lien entre les animaux et les hommes [Law no 2021-1539 of November 30, 2021 aimed at combating animal abuse and strengthening the link between animals and humans]. *Journal Officiel de la République Française [Official Gazette of France]*. <https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000044387560>
- LTO. (2023). Wat vindt u als paardenliefhebber over paardenwelzijn? <https://www.lto.nl/wat-vindt-u-als-paardenliefhebber-over-paardenwelzijn/>
- Luke, K. L., McAdie, T., Smith, B. P., & Warren-Smith, A. K. (2022). New insights into ridden horse behaviour, horse welfare and horse-related safety. *Applied Animal Behaviour Science*, 246, 105539.

- Luke, K. L., Rawluk, A., McAdie, T., Smith, B. P., & Warren-Smith, A. K. (2023). How equestrians conceptualise horse welfare: Does it facilitate or hinder change? *Animal Welfare*, 32, e59.
- McBride, S. D., & Mills, D. S. (2012). Psychological factors affecting equine performance. *BMC veterinary research*, 8(1), 1–11.
- McGreevy, P., Berger, J., De Brauwere, N., Doherty, O., Harrison, A., Fiedler, J., Jones, C., McDonnell, S., McLean, A., Nakonechny, L., et al. (2018). Using the five domains model to assess the adverse impacts of husbandry, veterinary, and equitation interventions on horse welfare. *Animals*, 8(3), 41.
- McLean, A. N., & Christensen, J. W. (2017). The application of learning theory in horse training. *Applied Animal Behaviour Science*, 190, 18–27.
- Mellor, D. J., Beausoleil, N. J., Littlewood, K. E., McLean, A. N., McGreevy, P. D., Jones, B., & Wilkins, C. (2020). The 2020 Five Domains model: Including human–animal interactions in assessments of animal welfare. *Animals*, 10(10), 1870.
- Merkies, K., Nakonechny, L., DuBois, C., & Derisoud, E. (2018). Preliminary study on current perceptions and usage of training equipment by horse enthusiasts in Canada. *Journal of Applied Animal Welfare Science*, 21(2), 141–152.
- Peterson, C. R., & DuCharme, W. M. (1967). A primacy effect in subjective probability revision. *Journal of Experimental Psychology*, 73(1), 61.
- Pollard, D., & Grewar, J. D. (2020). Equestrian road safety in the United Kingdom: Factors associated with collisions and horse fatalities. *Animals*, 10(12), 2403.
- Prickett, R. W., Norwood, F. B., & Lusk, J. L. (2010). Consumer preferences for farm animal welfare: Results from a telephone survey of us households. *Animal welfare*, 19(3), 335–347.
- Raabymagle, P., & Ladewig, J. (2006). Lying behavior in horses in relation to box size. *Journal of Equine Veterinary Science*, 26(1), 11–17.
- Randler, C., Adan, A., Antofie, M.-M., Arrona-Palacios, A., Candido, M., Boeve-de Pauw, J., Chandrakar, P., Demirhan, E., Detsis, V., Di Milia, L., et al. (2021). Animal welfare attitudes: Effects of gender and diet in university samples from 22 countries. *Animals*, 11(7), 1893.
- Rioja-Lang, F. C., Connor, M., Bacon, H., & Dwyer, C. M. (2020). Determining a welfare prioritization for horses using a Delphi method. *Animals*, 10(4), 647.
- Roest, A., & van der Wielen, P. (2012). *Hippisch onderwijs in 2028: Een wenkend perspectief* (tech. rep.). LEI Wageningen UR.
- Rogers, S., & Bell, C. (2022). Perceptions of fear and anxiety in horses as reported in interviews with equine behaviourists. *Animals*, 12(21), 2904.
- Ruet, A., Lemarchand, J., Parias, C., Mach, N., Moisan, M.-P., Foury, A., Briant, C., & Lansade, L. (2019). Housing horses in individual boxes is a challenge with regard to welfare. *Animals*, 9(9), 621.
- Seabra, J. C., Dittrich, J. R., & do Vale, M. M. (2021). Factors associated with the development and prevalence of abnormal behaviors in horses: Systematic review with meta-analysis. *Journal of Equine Veterinary Science*, 106, 103750.
- Shivley, C. B., Garry, F. B., Kogan, L. R., & Grandin, T. (2016). Survey of animal welfare, animal behavior, and animal ethics courses in the curricula of AVMA council on education-accredited veterinary colleges and schools. *Journal of the American Veterinary Medical Association*, 248(10), 1165–1170.
- Skinner, J. E., Hilly, L. J., Li, X., Cawdell-Smith, A. J., & Bryden, W. L. (2019). Equine production systems and the changing role of horses in society.
- Smyth, G., & Dagley, K. (2015). Demographics of Australian horse owners: Results from an internet-based survey. *Australian veterinary journal*, 93(12), 433–438.
- Søndergaard, E., Jensen, M. B., & Nicol, C. J. (2011). Motivation for social contact in horses measured by operant conditioning. *Applied Animal Behaviour Science*, 132(3–4), 131–137.
- SRP. (2023). Paardenwelzijn is meer dan sociaal contact. <https://sectorraadpaarden.nl/paardenwelzijn-is-meer-dan-sociaal-contact/>
- SRR. (2023). De SRR – onafhankelijk exameninstituut voor ruiters- en menbewijs. <https://www.srr-nederland.nl/>
- Thomas, D. R. (2006). A general inductive approach for analyzing qualitative evaluation data. *American journal of evaluation*, 27(2), 237–246.
- Thorne, J., Goodwin, D., Kennedy, M., Davidson, H., & Harris, P. (2005). Foraging enrichment for individually housed horses: Practicality and effects on behaviour. *Applied Animal Behaviour Science*, 94(1–2), 149–164.
- Toorn, A. v. d. (2023). Cursussen met of zonder eigen paarden. <https://e-quine.com/cursussen/>
- Urquhart, C. (2022). Grounded theory for qualitative research: A practical guide. *Grounded Theory for Qualitative Research*, 1–100.
- Visser, E. K., & Van Wijk-Jansen, E. E. (2012). Diversity in horse enthusiasts with respect to horse welfare: An explorative study. *Journal of Veterinary Behavior*, 7(5), 295–304.

- Voigt, M. A., Hiney, K., Richardson, J. C., Waite, K., Borron, A., & Brady, C. M. (2016). Show horse welfare: Horse show competitors' understanding, awareness, and perceptions of equine welfare. *Journal of Applied Animal Welfare Science*, 19(4), 335–352.
- Watney, M. (2023). *Horse owners' knowledge of fundamental care and their perceptions on the implementation of a mandatory certificate of knowledge* [Master's thesis].
- Whisher, L., Raum, M., Pina, L., Pérez, L., Erb, H., Houpt, C., & Houpt, K. (2011). Effects of environmental factors on cribbing activity by horses. *Applied Animal Behaviour Science*, 135(1-2), 63–69.
- White-Lewis, S. (2020). Equine-assisted therapies using horses as healers: A concept analysis. *Nursing Open*, 7(1), 58–67.
- World Horse Welfare. (2015). *Removing the blinkers: The health and welfare of European Equidae in 2015*.
- Woude, T. v. d. (2022). *Options for improving the day-to-day management and husbandry of horses in the Netherlands* [Master's thesis].

Appendix A: Survey Questions

1. Wat is jouw geslacht?
 - Vrouw
 - Man
 - Non-binair
 - Wil ik niet zeggen
2. Hoe oud ben jij?
 - 18-24
 - 25-34
 - 35-44
 - 45-54
 - 55-64
 - 65-74
 - 75 en ouder
3. Op welke manier ben je hoofdzakelijk met paarden bezig?
 - Ik ben eigenaar of medewerker van een bedrijf of organisatie met paarden (manege, pensionstal, opfok, trainingstal, handel, overig) (primaire sector)
 - Ik ben eigenaar of medewerker van een bedrijf of organisatie die paardengerelateerde producten maakt (harnachement, kleding, voer, stal benodigdheden en meer) (secondaire sector)
 - Ik ben eigenaar of medewerker van een bedrijf of organisatie in de paardengerelateerde dienstverlening (gezondheid, educatie, overig) (tertiaire sector)
 - Ik heb (beschikking over) een of meerdere paard(en) en ben sportruiter in de Subtop en/of Grand Prix.
 - Ik heb (beschikking over) een of meerdere paard(en) en ben sportruiter in de basissport Ik heb (beschikking over) een of meerdere paard(en) en ben recreativeruiter en rijd geen officiële wedstrijden
 - Ik heb geen eigen paard en rij op een manege
 - Overige (geef nadere toelichting)
4. Een kennis van jou heeft een paard gekocht. Ze wil het paard graag bij een pensionstal onderbrengen. Paardenwelzijn staat bij haar op nummer 1. Ze vraagt jouw advies over waar ze op moet letten bij een nieuwe stal om het welzijn van haar paard optimaal te kunnen waarborgen. Wat zou jouw advies zijn?
5. Mennen of rijden? Wat doe je het meest?
 - Mennen
 - Rijden
6. Stel de dochter van een goede bekende is net begonnen met paardrijden/mennen. Wat moet ze volgens jou kunnen of weten om ervoor te zorgen dat ze een goede ruiter/menner wordt, die het welzijn van haar paard kan waarborgen?
7. Wil je nog meedenken over het rijden/mennen?
 - Ja
 - Nee
8. Stel die jonge menner wil daarnaast ook gaan rijden/mennen. Wat moet zij vervolgens nog kunnen of weten om ervoor te zorgen dat ze ook een goede ruiter wordt?
9. Als je terug denkt naar het begin van jouw paardencarrière: Wat had je toen graag willen weten en/of kunnen dat je nu wel kunt of weet?
10. Tenslotte nog wat vragen over de dagelijkse omgang met paarden, naast het houden van paarden of het rijden en/of mennen. Wat zou volgens jou iedereen die met paarden omgaat moeten weten of kunnen?
11. Wat zou jij zelf nog meer willen weten of kunnen om nog beter voor je paard te kunnen zorgen?
12. Zijn er dingen waar je op dit moment tegenaan loopt in de omgang met je paard? Denk bijvoorbeeld aan dingen die je niet durft te doen of waarvan je niet weet hoe je het zou moeten aanpakken. Wellicht mis je soms de steun of support van jouw omgeving, of weet je niet bij wie je moet zijn met een vraag of zorg.

Appendix B. Themes and definitions

Table B.1: Equine Husbandry

| Subtheme | Subsubtheme | Definition |
|--------------------------------------|------------------------------|---|
| Ability to Perform Natural Behaviour | Enrichment | Activities or objects that provide physical and mental stimulation to the horse. E.g., offering branches or shrubs to browse. |
| | Free Movement | Frequency and duration of the horse's ability to move freely within its environment. |
| | Physical Space | Aspects of the environment in which a horse is kept, allowing the horse to display natural behaviours. E.g., space to roll or lie down. |
| | Protection Against Weather | Measures to protect horses from climate and weather conditions, such as rain or sun. E.g., presence of a shelter or trees. |
| | Social Contact | Opportunities for the horse to interact with conspecifics. |
| Equine Care | General | Basic skills of coat care, saddling, or not further specified. |
| | Hoof Care | Maintenance and care for the horse's hooves. |
| | Veterinary Care | Medical care and treatments given to the horse, and the importance of knowledge of health aspects. |
| Feeding | Concentrates and supplements | Feeding of concentrated feed such as pellets or muesli, as well as additional nutritional supplements. |
| | Forage | Feeding of hay, haylage, or silage. |
| | Water | Presence of sufficient and clean drinking water. |
| Stabling | Bedding | Material used on the floor of the stable, such as straw or sawdust. |
| | Dimensions | The size and space of the stabling available for the horse. |
| | Stable Climate | Conditions within the stable, such as ventilation, daylight, cleanliness, and temperature. |

Table B.2: Human-Horse Interaction

| Subtheme | Subsubtheme | Definition |
|------------------------|----------------------------------|---|
| Knowledge of Behaviour | Human-Horse Communication | The ability to understand how and why horses respond to different stimuli or situations. Includes importance of recognition of (body) language and communication between horse and human. |
| | Natural Behaviour | Insight and understanding of the natural behaviour, the ability to recognise and interpret the instinctive behaviour of horses. |
| | Recognising Abnormalities | The ability to identify specific physical or behavioural indicators in a horse that point to well-being or health problems. |
| Norms and Values | Patience | The willingness to take time and not to rush, especially when the horse is learning something new. |
| | Respect | Recognition and treatment of horses as sensitive and intelligent individuals. |
| | Sense of Responsibility | Awareness of the duty of care, including financial aspects, one has towards the well-being and health of the horse. |
| | Trust | A mutual relationship of reliability between human and horse. |
| Safety | Safety for Off-site Environments | Actions and behaviours to ensure safe public interactions, like obeying traffic rules and anticipating other road users' behaviour. |
| | Safety for the Horse | Measures to ensure the horse's physical well-being, such as proper tack and safe environments. |
| | Safety for the Trainer | Measures and behaviours aimed at protecting people who interact directly with horses, like using safety gear and following safe riding and handling protocols. |

Table B.3: Equitation

| Subtheme | Subsubtheme | Definition |
|-----------------------------|--------------------------|---|
| Tack and Equipment | Knowledge of Tack | Understanding the different types of equipment and their proper use. |
| | Use of Training Aids | Using equipment like saddles, auxiliary reins, or bits during training. |
| Training of the Horse | General | Miscellaneous comments on the training of the horse, e.g., the importance of a proper warm-up. |
| | Groundwork | Training techniques executed from the ground to promote mutual respect and trust between horse and human, including (Natural) Horsemanship. |
| | How a Horse Learns | Understanding the learning processes and mechanisms in horses. |
| | How a Horse Moves | Understanding the horse's movement, informed by anatomy and biomechanics. |
| | Horse Fitness or Strain | Knowledge of the physical demands placed on a horse during training and how to prevent overworking. |
| | Training of Young Horses | The initial phase where a young horse is taught basic skills and behaviours. |
| Training of Rider or Driver | Lesson and Instruction | Formal training sessions led by an instructor. |
| | Posture, Seat, Balance | The rider's physical positioning and how it affects the horse. |
| | Rider Fitness or Weight | The importance of the rider's or driver's physical condition. |
| | Use of Cues | How a rider uses reins, hands, and legs to communicate with the horse. |

Appendix C: Quantitative Analysis: Test Statistics

The following tables show the test statistics from the quantitative analysis conducted on the subthemes. These tables are categorised according to the three variables tested: Gender, Age, and Type of Involvement and includes the test statistic values, degrees of freedom, and the significance for each variable considered.

Table C.1: Test Statistics Quantitative Analysis: Gender

| Variable | Test Statistic | df | Asympt. Sig. (2-sided) |
|--------------------------------------|----------------|----|------------------------|
| Ability to Perform Natural Behaviour | 47.664 | 1 | <0.001 |
| Stabling | 5.094 | 1 | 0.024 |
| Equine Care | 0.823 | 1 | 0.364 |
| Feeding | 22.234 | 1 | <0.001 |
| Knowledge of Behaviour | 5.312 | 1 | 0.021 |
| Norms and Values | 1.327 | 1 | 0.249 |
| Interaction Styles | 2.906 | 1 | 0.088 |
| Safety | 0.052 | 1 | 0.820 |
| Tack and Equipment | 1.464 | 1 | 0.226 |
| Training of Rider or Driver | 0.435 | 1 | 0.510 |
| Training of the Horse | 11.708 | 1 | <0.001 |

Table C.2: Test Statistics Quantitative Analysis: Age

| Variable | Test Statistic | df | Asympt. Sig. (2-sided) |
|--------------------------------------|----------------|----|------------------------|
| Ability to Perform Natural Behaviour | 42.020 | 5 | <0.001 |
| Stabling | 17.967 | 5 | 0.003 |
| Equine Care | 12.543 | 5 | 0.028 |
| Feeding | 28.339 | 5 | <0.001 |
| Knowledge of Behaviour | 11.125 | 5 | 0.049 |
| Norms and Values | 7.071 | 5 | 0.215 |
| Interaction Styles | 10.236 | 5 | 0.069 |
| Safety | 4.291 | 5 | 0.508 |
| Tack and Equipment | 1.654 | 5 | 0.895 |
| Training of Rider or Driver | 10.532 | 5 | 0.061 |
| Training of the Horse | 19.647 | 5 | 0.001 |

Table C.3: Test Statistics Quantitative Analysis: Type of Involvement

| Variable | Test Statistic | df | Asympt. Sig. (2-sided) |
|--------------------------------------|----------------|----|------------------------|
| Ability to Perform Natural Behaviour | 14.511 | 5 | 0.013 |
| Stabling | 37.771 | 5 | <0.001 |
| Equine Care | 6.273 | 5 | 0.281 |
| Feeding | 8.782 | 5 | 0.118 |
| Knowledge of Behaviour | 10.601 | 5 | 0.060 |
| Norms and Values | 3.718 | 5 | 0.591 |
| Interaction Styles | 13.519 | 5 | 0.019 |
| Safety | 0.692 | 5 | 0.983 |
| Tack and Equipment | 11.457 | 5 | 0.043 |
| Training of Rider or Driver | 4.840 | 5 | 0.436 |
| Training of the Horse | 8.289 | 5 | 0.141 |