

What is Welfare? A Qualitative Study into Perceptions of Equine Welfare of the Dutch Equestrian Community

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Received: 08 January 2024; Revised: 27 February 2024; Accepted: 13 March 2024; Published: 02 April 2024



Academic Editor: Roberta Blake, Writtle University College, Chelmsford, United Kingdom

Abstract

Equine welfare is an increasingly important topic in the Netherlands and abroad. While existing literature broadly captures equine welfare concerns, research focused on Dutch horse enthusiasts is sparse. This study aims to identify what aspects horse enthusiasts in the Netherlands consider essential to safeguard equine welfare. An online survey comprising four binary yes-no questions, and 12 open questions was disseminated via social media. Survey data were analyzed qualitatively using inductive thematic analysis. The survey received 875 complete responses. Thematic analysis led to the identification of three higher-order themes: Equine Husbandry, Human-Horse Interaction, and Equitation. Aspects relating to Equine Husbandry were mentioned most, suggesting that Dutch equine enthusiasts consider aspects relating to housing and management more important to overall equine welfare. Within this theme, lower-order themes such as the ability to perform natural behavior and feeding were most prominent. On the theme of Human-Horse Interaction, respondents highlighted the importance of understanding horse behavior 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, various aspects of training the rider and the horse were highlighted, including a sound knowledge of tack and equipment. Respondents emphasized the importance of qualified instruction on horse care and welfare. Despite evident awareness of a wide variety of welfare aspects among equestrians, considerable discrepancy between knowledge and practice persists, pointing to the need for tailored education and training to facilitate better application of welfare principles.

Keywords

Horses; social license to operate; equine husbandry; human-horse interaction; equitation; Netherlands

Graphical Abstract



1. Introduction

In recent years, against the backdrop of high-profile incidents of equine mismanagement and abuse [1–4], the topic of equine welfare and how to safeguard it has become increasingly important. This growing concern is understandable, given the significant role horses play in society, through a wide range of activities, from recreational pursuits to competition at the highest level, from breeding, training, and trading of horses to coaching and therapeutic practices [5–9]. Unsurprisingly therefore, the issue of how equestrianism is to preserve its "Social License To Operate", i.e. the dynamic, largely intangible, unwritten contract between society and the equestrian sector [8,10–13], occupies much of the political agendas of national and international governing bodies [14–16].

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Nevertheless, horse owners themselves play a crucial role in engaging in responsible husbandry and training practices that align with the intrinsic needs of horses and safeguard and promote their physical and mental well-being [17–19]. As such, the knowledge and care provided by humans directly influence the quality of life and welfare experienced by horses. However, intentional malpractice aside, what is thought to be routine management or accepted training practices at home have been shown to – inadvertently – put the welfare of horses at risk [20,21]. Research by Dyson *et al.* [22] into the prevalence of gait abnormalities in leisure horses from the United Kingdom thought to be sound by their owners demonstrated that 28% of 148 horses were lame in hand and 62% were lame when ridden. Similarly, in a study by Rhodin *et al.* [23] more than 70% of "owner-sound" horses presented with above-threshold asymmetries. Common management practices such as stabling horses, feeding substantial amounts of concentrate feed, and allowing no/reduced time at pasture are all known risk factors for colic [24], a condition that is believed to affect up to 10% of horses annually [25], with approximately 20% of cases involving intensive medical treatment, surgery, and/or death of these animals [24].

In addition to the gap in equine-related knowledge [26], various international studies have suggested that the way in which horse enthusiasts understand the concept of welfare will likely impact their assessment of equine-related practices [12,27–29]. In an analysis of in-depth interviews with British equine stakeholders, Horseman *et al.* [29] categorized welfare problems according to health-related, management-related, and riding- and training-related welfare problems. 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 issues related to the 24-hour stabling of horses are under- or overfeeding, inappropriate rugging, limited access to water, and social isolation. Riding and training-related welfare problems centered on the inappropriate use of training aids and poorly fitting tack [29]. Dubois *et al.* [30] investigated welfare problems at the individual horse level as experienced by Canadian equine professionals. The most critical issues identified were horses being denied access to important psychological or physical resources, together with inappropriate drug use [30]. 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 [30]. Using the Five Domains Framework, McGreevy *et al.* [31] assessed expert perceptions of horse welfare across different categories. Expert panelists from Australia, the United Kingdom, Ireland, Canada, and the United States 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 [31]. A study investigating perceptions of horse welfare at shows in the United States [32] identified training aspects like excessive pulling on the reins, excessive spurring, inducing unnatural movements, excessively repetitive aids or movements, and excessive continued pressure on the bit as the most prevalent welfare issues. A recent study by Williams *et al.* [33] captured the opinions of leading experts actively

involved in national and international horse sports with regard to the management of sport horse health and welfare. While participants unanimously considered the key areas of training management, competition management, young horse management, health status and veterinary management, and the horse-human relationship essential, they failed to reach a consensus on the importance of stable and environmental management and welfare assessment. In fact, the majority felt that these areas were already well managed, and thus not considered essential. These findings are evidence of the difficulty in defining equine welfare clearly and unequivocally [33]. Yet as the growing body of literature would suggest, there is an increasing focus on what the concept of equine welfare means to different individuals, and how this might translate into practice at various levels of the industry as well as across various countries.

The Netherlands is considered one of the most prolific equestrian nations worldwide [34,35], with Dutch riders regularly winning medals at the Olympic, World, and European stages, and the Dutch warmblood is considered to be the most successful breed in the world [36]. Approximately 500,000 horse enthusiasts participate regularly in a range of horse-related activities, either during formal competitions or at a recreational level [35]. As it stands, equestrianism continues to be of considerable importance to the Dutch sporting culture. At the same, there has been increasing concern from the Dutch general public regarding equine welfare standards, with several TV reports and main stream newspapers covering aspects ranging from sport horse welfare [37,38] to equine husbandry practices in riding schools [39] and horses kept privately at home [40]. However, little targeted research exists examining the current perspectives of Dutch equine enthusiasts regarding equine welfare. Therefore, the current study aimed to gain an in-depth understanding of which aspects Dutch horse enthusiasts consider important contributors to equine welfare.

2. Materials and Methods

2.1. Survey Recruitment and Distribution

In order to engage as many equine enthusiasts as possible across the Netherlands a cross-sectional study design was used. In line with Dutch regulations for survey-based research, individuals aged 16 years or older, involved at all levels of equestrian activities were targeted. An a priori sample size calculation with a confidence level of 95% and a 5% error margin determined that a minimum sample of 384 was required. Recruitment took place via Facebook, LinkedIn, various online equine news sites, and through email newsletters of partner organizations from the 27th of April to the 21st of August 2023 using SurveyMonkey, an online survey platform (SurveyMonkey Inc., California, USA). Following an introduction of the aim of the study at the start of the survey, respondents were asked to provide active informed consent to participate. All respondents were assigned unique numerical identifiers to ensure anonymity. The survey was conducted according to the Netherlands Code of Conduct for Research Integrity and followed the guidelines of the Declaration of Helsinki.

2.2. Survey Design

The survey was available in Dutch and consisted of two parts with a total of 19 questions; **Supplementary Material 1**

(Dutch) and **Supplementary Material 2** (English translation). The first part of the survey collected demographic information of respondents (gender, age, and type of involvement with horses). In addition to a number of pre-defined options, participants were also given the option to provide an answer in an open-text response. The second part consisted of four binary yes-no questions, determining the relevant routing of the survey, and 12 open questions concerning equine husbandry, riding and driving, and horse handling. In order to elucidate as much detail as possible regarding which aspects participants find important when it comes to equine welfare while staying as close to reality as possible, the questions were phrased as scenarios, e.g. "Imagine a friend of yours has bought a new horse and is now looking for a yard. What would you advise her to look for in a new yard."; "Imagine the daughter of an acquaintance has just started to ride/drive. What should she know or be able to do to become a good rider/driver, who is able to safeguard the welfare of her horse(s)?" and "Thinking back to the start of your life with horses: What would you have liked to have known/been able to do then, that you know/are able to do now?"

2.3. Data Analysis

Data were imported into IBM SPSS for Social Scientists 28.0 to obtain descriptive statistics, such as frequencies and proportions for the available categorical data. Open-text responses to the demographic questions were reviewed and systematically categorized into one of the pre-existing categories. Any information contained in the open-text responses that might result in the personal identification of the participant was removed from the data set prior to analysis.

For the qualitative analysis, a thematic approach was used [41]. Responses were imported into NVivo 14 (QSR International, Melbourne, Australia) for thematic coding and subsequent analysis. The first stage of data analysis involved an immersive engagement with the collected data. The second author read through the responses to the open questions multiple times to gain a deep understanding and familiarity with the content. Initial codes were generated by systematically analyzing the data line-by-line and were drawn directly from words or phrases used by participants. Codes were tagged to specific and relevant data extracts that appeared significant to the research question. The initial codes were discussed by the first and second authors and any discrepancies in understanding were resolved through consensus. Following coding, three overarching higher-order themes were identified by clustering together similar or related codes. This process was iterative and involved constant comparison between codes, themes, and the data itself. Each theme was rigorously reviewed to ensure coherence and distinctiveness. This involved re-examining the coded data extracts for each theme and considering their overall narrative. 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 category, the response that most comprehensively represented that theme was selected.

After this initial process of selection and higher-order theme development, survey answers were coded manually per higher-

order theme into thematic categories. 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. Throughout the coding process, the first and last authors conferred on the meaning of each thematic category to enhance the reliability and validity of the research findings. Although data saturation is often considered a stopping point in qualitative research [42], 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 data analysis was stopped at the onset of saturation. Thus, by extending the analysis, a more comprehensive view of the participants concerning equine welfare could be gained.

Finally, all categories were examined for similarities in content and clustered into lower-order themes. These lower-order themes were then named to accurately reflect the depth and nuances of the data.

3. Results

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. A total of 875 responses were included in the final analysis.

Over half of the respondents were in the age cohorts of 35-44 (N = 205; 23.4%) and 45-54 (N = 251; 28.7%). Approximately half of the respondents (N = 465; 50.4%) were recreational riders not engaged in official competitions, while a further 21.6% (N = 199) participated only at a basic amateur level. A total of 21.6% (N = 200) of respondents listed equine industry-related professions and of these, 67.6% (N = 135) 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 1**.

3.1. Thematic Analysis

In the course of the thematic analysis, 53 unique codes were identified, which were organized into a hierarchical structure consisting of 3 higher-order themes, 11 lower-order themes, and 39 descriptive categories. The primary themes were: Equine Husbandry, Human-Horse Interaction, and Equitation. Detailed definitions of the lower-order themes and descriptive categories can be found in **Tables 2a, b, and c**.

4. Discussion

The current study aimed to investigate the perspectives of Dutch equine enthusiasts on which aspects contribute toward equine welfare. The following discussion focuses on the most salient aspects and what they might mean to the practical application and interpretation of equine welfare in the Netherlands.

Table 1: Demographic characteristics of respondents.

Demographic Variable	Category	N	Percentage (%)
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 with Horses	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
	Competitive rider; amateur level	199	21.6
	Competitive rider at national or international level	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

4.1. Higher-Order Theme Equine Husbandry

Equine Husbandry emerged as one of the three central themes in this survey, incorporating four lower-order themes: Ability to perform natural behavior, Equine care, Feeding, and Stabling. Responses pertaining to Equine Husbandry were more prevalent than those concerning the other two main themes within the survey. This could signify that horse enthusiasts consider husbandry practices as more important for equine welfare than aspects of training or interaction with the horse. Such a perspective is supported by research suggesting that the welfare of recreational and sport horses is primarily influenced by husbandry and management practices [17,43,44]. Research by Furtado *et al.* [45] also showed that horse enthusiasts' perceived improvements in training practices yielded fewer welfare benefits compared to enhancements in overall management. Interestingly, equestrian experts involved at the highest level of the sport were reported as considering stable and environment management as less important compared to aspects relating to training and competition [33], highlighting the potential dichotomy in viewpoints between different types of stakeholders in the equine industry. For a balanced understanding of equine welfare, it is therefore essential to acknowledge that along with husbandry, appropriate human-horse interactions and training practices are equally critical, as corroborated by

various studies highlighting their significant impact on the well-being of horses [46–49].

The lower-order theme Ability to perform natural behavior was mentioned by the majority of respondents, mirroring other studies that showed respondents' propensity to emphasize the importance for horses to engage in natural behaviors [50–53]. Bornmann *et al.* [54] were able to demonstrate horse owners' belief that access to turnout and social contact make horses happier. Interestingly, while respondents in the current study considered Free movement to be important, their opinions varied regarding what constitutes sufficient free movement for horses. Many respondents advocated for 24/7 free movement, yet others suggested durations ranging from 2 to 12 hours per day. These differing opinions on the specific duration of free movement indicate that even though horse enthusiasts seem to understand the importance of allowing the horse to perform innate behaviors, their interpretation of the practical implications differs considerably. This could be because horse owners might be motivated by other factors, such as fear of their horses getting injured [55], or spatial restrictions of the accommodation they keep their horses in [56]. These findings highlight the need for communication and educational strategies that focus on helping horse owners make the most appropriate decisions that maximize equine welfare within the context of their particular situation.

Table 2a: Detailed description of higher-order theme Equine Husbandry, descriptive categories, and definitions of participants' perceptions of important welfare components, including the percentage of respondents who mentioned the theme.

Higher-order theme: Equine Husbandry (96%)		
Lower-order theme	Descriptive Category (% of mentions)	Definition
Ability to Perform Natural Behavior (91%)	Free Movement (88%)	Frequency and duration of the horse's ability to move freely within its environment.
	Social Contact (55%)	Opportunities for the horse to interact with conspecifics.
	Protection Against Weather (19%)	Measures to protect horses from climate and weather conditions, such as rain or sun, e.g., presence of a shelter or trees.
	Physical Space (7%)	Aspects of the environment in which a horse is kept, allowing the horse to display natural behaviors, e.g., space to roll or lie down.
	Enrichment (5%)	Activities or objects that provide physical and mental stimulation to the horse, e.g., offering branches or shrubs to browse.
Feeding (72%)	Forage (54%)	Feeding of hay, haylage, or silage.
	Water (11%)	Presence of sufficient and clean drinking water.
	Concentrates and supplements (5%)	Feeding of concentrated feed such as pellets or muesli, as well as additional nutritional supplements.
Stabling (39%)	Stable Size (27%)	The size and space of the stabling available for the horse.
	Stable Climate (22%)	Conditions within the stable, such as ventilation, daylight, cleanliness, and temperature.
	Bedding (3%)	Material used on the floor of the stable, such as straw or sawdust.
Equine Care (39%)	Veterinary Care and Health (25%)	Medical care and treatments given to the horse, and the importance of knowledge of health aspects.
	Grooming (16%)	Basic skills of coat care, getting the horse ready, or not further specified.
	Hoof Care (7%)	Maintenance and care for the horse's hooves.

Many respondents also indicated that horses should have access to free movement year-round, including during winter months. Previous research has shown that horses in the Netherlands have less access to free movement during the winter [57]. Unsurprisingly, therefore, the use of paddocks during winter months, especially when pastures are too wet, was a frequent suggestion by respondents. Respondents also highlighted the importance of dry patches for horses to stand on, especially when conditions are wet. Respondents also emphasized the need for ample Physical space in paddocks or pastures that provide sufficient room for natural behaviors like galloping and rolling. These suggestions demonstrate a solid understanding of participants of horses' intrinsic needs, as research suggests that horses housed in larger paddocks display increased movement and foraging activity, and less time passively standing [58]. Such a behavioral pattern is more congruent with their natural behavior, underscoring the significance of providing adequate space for horses [56]. Protection against the weather was also frequently mentioned, with (artificial) shelters most often suggested as a means of protection.

More than half of respondents highlighted the need for Social contact with other horses. 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 [59,60]. Social isolation is also mentioned as a primary welfare concern

to horse enthusiasts in other studies [30,31,51]. If direct contact is not feasible, some respondents indicated that indirect contact—such as through bars or across fences— might also be considered acceptable. Again, these findings seem to indicate that equine enthusiasts tend to consider welfare as part of the environmental context. In the Netherlands, where geographical restrictions can be a challenge, equine enthusiasts will likely look for appropriate alternatives that promote equine welfare as much as possible [13,20].

Enrichment was occasionally mentioned, often in the context of feeding, such as providing horses with slow feeders or branches and shrubs to browse. Some respondents also linked enrichment to periods of stabling and suggested the use of straws to counteract boredom. The provision of enriched feed, incorporating a variety of forages, as well as other types of edible and non-edible enrichments has been observed to engage horses in more foraging behavior and decrease stereotypical behaviors compared to horses fed solely on hay [61–63]. Moreover, such enrichment strategies have been associated with decreased cortisol levels and neophobia, and an increase in the time horses spend lying down [64]. The relative lack of emphasis on enrichment by respondents highlights a potentially overlooked opportunity for advancing equine welfare. These findings seem to mirror some of the issues encountered in the zoo and aquarium sector, where the need for evidence-based environmental enrichment has been widely recognized [65,66], but where practical implementation continues to be a challenge [67].

Table 2b: Detailed description of Higher-order theme Human-Horse Interaction, descriptive categories, and definitions of participants' perceptions of important welfare components, including the percentage of respondents who mentioned the theme.

Higher-order theme: Human-Horse Interaction (90%)		
Lower-order theme	Descriptive Category	Definition
Knowledge of Behavior (60%)	Human-Horse Communication (43%)	The ability to understand how and why horses respond to different stimuli or situations. Includes the importance of recognition of (body) language and communication between horses and humans.
	Natural Behavior (20%)	Insight and understanding of the natural behavior, the ability to recognize and interpret the instinctive behavior of horses.
	Recognizing Abnormalities (17%)	The ability to identify specific physical or behavioral indicators in a horse that point to well-being or health problems.
Norms and Values (47%)	Respect (36%)	Recognition and treatment of horses as sensitive and intelligent individuals.
	Patience (10%)	The willingness to take time and not to rush, especially when the horse is learning something new.
	Trust (6%)	A mutual relationship of reliability between humans and horses.
Interaction Styles (45%)	Gentleness (24%)	Being soft in both hand and voice, with the overarching sentiment of being clear without being strict. Causing pain or using violence is considered unacceptable.
	Calmness (8%)	Remaining calm, particularly in potentially dangerous situations or whenever the horse does not follow commands. The ability to instill calmness in oneself and the horse.
	Sense of Responsibility (5%)	Awareness of the duty of care, including financial aspects, one has toward the well-being and health of the horse.
Safety (24%)	Safety in Off-site Environments (13%)	Actions and behaviors to ensure safe public interactions, like obeying traffic rules and anticipating other road users' behavior.
	Safety of the Horse (8%)	Measures to ensure the horse's physical well-being, such as proper tack and safe environments.
	Safety of the Human (4%)	Measures and behaviors aimed at protecting people who interact directly with horses, like using safety gear and following safe riding and handling protocols.

The lower-order theme of Feeding was another prevalent topic, mentioned by 72% of respondents. Quality of feed was a common concern, with a dominant viewpoint advocating for unlimited access to roughage, considered vital for both health and behavioral 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. Concentrate feeds were mentioned by a small percentage of respondents, 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. Respondents' focus on these aspects not only points toward an awareness of the close link between diet and equine health, and tallies with scientific insights on the importance of roughage for welfare in horses [68–70].

In the lower-order theme of Stabling, stable size was most frequently mentioned by respondents. Some respondents commented that the stable should have specific dimensions such as 3 by 3 meters, 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 [56,71]. Despite this, the literature on optimal stable dimensions is sparse and some researchers suggest that confinement to a stable is invariably detrimental to equine welfare, irrespective of its dimensions [46,72]. Given the high percentage of respondents who highlight the importance of stable size, this suggests a significant concern for equine welfare and points toward a need for more comprehensive research to establish welfare-friendly stabling standards.

Veterinary care and health took precedence in the lower-order theme of Equine care, as over half of the responses within this theme centered around this topic. General knowledge relating to equine health and the most common diseases were most frequently mentioned. Respondents emphasized 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. Grooming a horse also featured prominently in this subtheme. Knowledge of basic grooming techniques was 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, mirroring findings within the literature [47,73,74].

Table 2c: Detailed description of higher-order theme Equitation, descriptive categories, and definitions of participants' perceptions of important welfare components, including the percentage of respondents who mentioned the theme.

Higher-order theme: Equitation (80%)		
Lower-order theme	Descriptive Category	Definition
Training of Rider or Driver (53%)	Lessons and Formals Instruction (38%)	Formal training sessions led by an instructor.
	Posture, Seat, Balance (14%)	The rider's physical positioning and how it affects the horse.
	Use of Cues (9%)	How a rider uses reins, hands, and legs to communicate with the horse.
	Rider/Driver Fitness or Weight (3%)	The importance of the rider's or driver's physical condition.
Training of the Horse (45%)	Groundwork (16%)	Training techniques executed from the ground to promote mutual respect and trust between horse and human, including (Natural) Horsemanship.
	Anatomy and Biomechanics (16%)	Understanding the horse's movement, informed by anatomy and biomechanics.
	General (11%)	Miscellaneous comments on the training of the horse, e.g. the importance of a proper warm-up.
	Equine Learning Theory (9%)	Understanding the learning processes and mechanisms in horses.
	Equine Fitness (8%)	Knowledge of the physical demands placed on a horse during training and how to prevent overworking.
	Training of Young Horses (4%)	The initial phase where a young horse is taught basic skills and behaviors.
Tack and Equipment (28%)	Knowledge of Tack (20%)	Understanding the different types of equipment and their proper use.
	Use of Training Aids (11%)	Using equipment like saddles, auxiliary reins, or bits during training.

In summary, the current study's findings on themes relating to Equine Husbandry underline how much horse enthusiasts value good management practices. However, these findings warrant a nuanced interpretation. For example, Luke *et al.* [75] highlight that concentrating solely on certain aspects can lead to a 'welfare blind spot,' overlooking other important aspects such as 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 the ability to perform natural behavior and feeding is symptomatic of a similar welfare blind spot among respondents, which might cause participants to ignore, or pay less attention to, other aspects that could influence equine welfare. These might include aspects relating to riding, training, or general interactions.

4.2. Higher-Order Theme Human-Horse Interaction

Human-horse interaction emerged as the second higher-order theme, with Knowledge of behavior most frequently mentioned by the respondents. This focus on horse behavior aligns with the literature that stresses the importance of understanding horse behavior to enhance their welfare, as well as human safety around equids [46,47,76]. Respondents emphasized the importance of 'speaking the horse's language' (Human-horse communication) which entailed accurately reading their mood and responding appropriately. The significance of being able to interpret the horse's signals correctly was often cited, emphasizing that effective communication between horse and human is essential to respondents.

Respondents also highlighted the critical role that horse owners play in correctly interpreting signs of discomfort, illness, stress, or pain in their horses. The ability to Recognize abnormal behaviors and correctly interpret them was stressed

as crucial for timely intervention and the maintenance of equine well-being. This emphasis echoes current research on this topic, which identifies misinterpretation of horse behavior as a significant welfare issue [47,49,77]. Behaviors that are considered problematic by owners, such as aggression, are often dismissed or misattributed to the horse's character [75,78,79]. 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 behaviors observed in ridden horses, as reported by Luke *et al.* [47], suggests that awareness alone might not be sufficient. A problem with recognizing abnormal behavior is that overexposure could desensitize horse owners, making it more difficult to identify, and act upon, signs of poor well-being [80–83]. Many horse owners reportedly struggle to detect signs of stress [43,84] and pain, such as back soreness or facial expressions [73,85,86]. The emphasis by respondents on the importance of recognizing pain and stress signals in horses underlines their awareness of the crucial role that horse owners play in these aspects of equine welfare.

Abstract values such as respect, patience, and trust were also mentioned relatively frequently and formed the lower-order theme of Norms and values. The fact that a horse is a sentient being with feelings and cognition was mentioned often, as well as 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 [28]. Additionally, respondents urged against anthropomorphizing horses, stressing that horses have different needs and perceptions compared to humans. McGreevy *et al.* [31] 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 behavior. However, anthropomorphism can also help humans to develop empathy and insight into their horse's experiences [7]. 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 an important aspect of human-horse interactions. Those discussing this topic emphasized 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 behaviors and that a patient approach is essential for a successful relationship. These considerations are in line with the theoretical underpinnings of the revised 5 domains model by Mellor *et al.* [49]. Domain 4, "Behavioral Interactions", in particular, stresses the impact of human behavior on an animal's affective experiences.

Related to such concepts was the lower-order theme of Interaction styles, including the categories of Cooperation, Gentleness, and Calmness. Respondents focused 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. In addition, respondents emphasized 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. Participants also stressed 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 fact that respondents valued calmness and gentleness when interacting with horses is encouraging given that they form the basis of an equitable human-horse partnership [27,49,87] and the lack of these qualities can have a detrimental impact on equine welfare [46,48,49].

The lower-order theme of Safety emerged as a diverse but often mentioned subtheme, encapsulating a range of concerns affecting the safety of both horses and humans. With regards to the Safety of 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. Safety of the human centered 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.

Where participants mentioned aspects relating to Safety in an Off-site environment, the emphasis was on knowledge of 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. While road safety is undeniably critical (see e.g. [88]), 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. However, current results show that safety for horses and humans is important to almost a quarter of respondents for safeguarding equine welfare.

In essence, according to survey respondents, the theme of Human-Horse Interaction is essential in understanding equine welfare. More than half of respondents mentioned the importance of understanding horse behavior, which seems to indicate that horse enthusiasts are motivated to understand how their horses think and feel, arguably to enhance the well-being of the horse as well as to promote human safety [27,89,90]. Additionally, ethical considerations such as respect, patience, and trust underscore the evolving understanding of horses as sentient beings deserving of ethical treatment, an aspect that [28].

4.3. Higher-Order Theme Equitation

The third higher-order theme Equitation encompasses the practice of riding or driving horses. In the lower-order theme of Training of Rider or Driver, lessons and formal instruction were frequently mentioned, with many respondents suggesting 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, a sentiment that has been widely acknowledged within the field of equitation science [80,91,92]. According to participants, the type of topics to be covered by educational activities include equine care, management, husbandry, and welfare. This suggests that instructors play a pivotal role in enhancing animal welfare, as it shows respondents are open to receiving instruction on a host of subjects, encompassing a holistic approach to the care of horses.

The Use of cues emerged as another important topic in this theme, including the use of hand and leg aids, with the emphasis on maintaining a quiet hand and leg. Participants often mentioned that the goal is to establish gentle contact with the horse's mouth. A clear consensus emerged that being too forceful could lead to discomfort or pain for the horse. Respondents also highlighted the necessity of Correct posture, and a quiet and balanced seat to facilitate better communication and avoid hindering the horse. It is encouraging that horse enthusiasts seem to appreciate the importance of using correct and unequivocal signaling. However, studies indicate a high incidence of oral injuries in horses due to the harsh use of bits and hand cues (e.g. [93]) as well as increased levels of resistance to acceleration and deceleration cues in horses with multiple riders [94] suggesting a gap between ideal practice and actual execution. Interestingly, this implicit need for better education is mirrored in participants' responses on the

importance of formalized instruction, suggesting that Dutch equine enthusiasts are highly motivated to learn.

Only a small percentage of respondents discussed Rider's or driver's fitness and weight, which contrasts with a study by Challinor *et al.* [95] in the UK, where a majority of participants recognized 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 behaviors consistent with musculoskeletal pain in horses [96]. This discrepancy suggests a need for increased awareness of the potential impact of rider weight on equine health and welfare, which should also be incorporated into educational activities.

On the lower-order theme of training the horse, 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. Good training practices were acknowledged as crucial not just for performance but also for the horse's overall well-being, which implies that respondents are aware that poor training techniques can lead to stress responses in horses [48]. Knowledge of Anatomy and biomechanics was considered vital for good training practices according to some respondents, as well as for identifying health-related issues. Other important aspects were knowledge and proper application of Groundwork techniques and knowledge of Equine learning theory. McLean and Christensen [48] 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 [75]. While it is positive that respondents appreciate the role of learning theories in horse training, the practical application thereof needs to be integrated into more formalized teaching and education for equestrians [27,90,91,97,98].

Lastly, respondents touched upon the intensity of training and how to gauge and build up Equine fitness. This was particularly highlighted in the context of driving, as several respondents raised the issue of the weight of the carriage potentially being 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 [52,99].

The responses on the aspect of Tack and equipment were rich in content and diversity. The importance of having a comprehensive understanding and Knowledge of tack, the different types, and how to use them safely to avoid causing pain or injury to the horse was highlighted. Respondents emphasized the importance of properly fitting tack, aligning with other studies identifying this as a critical welfare issue [31,51,79]. The use of training aids, such as whips, spurs, and auxiliary reins, was mentioned relatively often, but elicited differing opinions. While some emphasized 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, possibly

suggesting an emerging trend or preference among horse enthusiasts [75,100]. The diverging opinions on the use of training aids point toward a growing ethical debate within the equine community, mirror findings by DuBois *et al.* [30], 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 [29,45,46,74,101].

To summarize, the focus of the higher-order theme Equitation highlighted three lower-order themes—Training of the Rider or Driver, Training of the Horse, and Tack and Equipment. Respondents emphasized the importance of qualified instructors who are able to convey not only the technical aspects of riding but are able to incorporate other aspects of equine welfare into their teachings. Other aspects raised revolved around the proper use of cues, and diverging opinions on training aids, which underlined the obvious gap between theoretical knowledge and practical application. These findings underscore the need for ongoing education on these subjects.

4.4. Limitations

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 [102]. Reliance on a web-based sampling method could also lead to an over-representation of more privileged social groups [103]. The majority of respondents were female. While this is consistent with previous surveys on attitudes toward equine welfare [32,52,53,74], it may nevertheless skew the results of the survey. Females may have a heightened interest in animal welfare, making them more likely to participate in such surveys [104]. 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.

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 [53] on equine welfare in the Netherlands. However, while the sample may be skewed toward certain demographics or opinions, the data still provides valuable information for understanding key aspects of the subject.

Interpretation bias is an inherent risk in all qualitative research due to the significant role played by the researcher in data analysis [105]. We have sought to minimize this effect by adhering to recommended guidelines for qualitative reviews [106], which included coding the data as one cohesive dataset (instead of summarizing 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 [107] found that male respondents and respondents over the age of 50 provided shorter answers in open question-surveys than female and young participants. In the qualitative part of the study, this

was not a significant concern as the analysis was theme-based rather than volume-based.

The current study used common scenarios to elucidate participants' thoughts and ideas. While every effort was made to devise scenarios that reflected common equestrian practices, it is possible that the way scenarios were phrased biased respondents. What is more, the order in which the scenarios were presented may have caused participants to pay comparatively more attention to the first question, compared to subsequent questions. This would be in line with the primacy effect, which shows that proportionally more attention is paid to information presented first [108]. However, seeing that the survey relied on routing to encourage ease of completion, no alternative way of presenting the scenarios could have been devised. Lastly, participants are likely to have varying levels of expertise and experience when it comes to dealing with horses, leading to potential variations in data quality and consistency of the statements. However, seeing that the study was aimed at gaining a comprehensive insight into which aspects a representative sample of Dutch equine enthusiasts considers important to ensuring equine welfare, such divergence in expertise may also be considered an essential aspect of the study.

5. Conclusion

The current study provides a detailed exploration into the perspectives of the Dutch equestrian community on what is important to safeguard equine welfare. Thematic analysis indicates a strong awareness among Dutch horse enthusiasts of the multifaceted nature of equine welfare, which encompasses a broad spectrum from husbandry practices to the nuances of human-horse interactions and equitation. Although this survey was not meant to test participants' knowledge of equine welfare, the frequent mention of key aspects suggests a significant level of awareness on this subject among Dutch 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.

The insights gathered in this study can be used to inform the educational practices that are culturally relevant to the Dutch equestrian community. Such initiatives should strive to transform knowledge into action, ensuring that the principles of equine welfare are integrated into the daily lives of horses and horse owners. The study confirms a genuine concern for equine welfare in the Dutch horse-owning community, and the next step should be to bring this concern and knowledge into practice to safeguard equine welfare in the Netherlands.

Supplementary Materials

Supplementary Material 1: Original Survey Questions in Dutch; **Supplementary Material 2:** Survey Questions Translated into English.

Acknowledgments

The authors would like to thank Ronja Wagenknecht for capturing the essence of the study in the graphical abstract.

Ethical Approval

The survey was conducted according to the Netherlands Code of Conduct for Research Integrity and followed the guidelines of the Declaration of Helsinki.

Authors' Contributions

Conceptualization, I.W.; Methodology, I.W.; Formal analysis, F.L.B. and I.W.; Writing—original draft preparation, F.L.B.; Writing—review and editing, I.W. and Y.E.; Supervision, I.W. and Y.E.; All authors have read and agreed to the published version of the manuscript.

Data Availability

Data storage was conducted according to the Research Data Management policy framework of the University of Applied Sciences Van Hall Larenstein. Data management will adhere to the principles of Open Science and data is accessible on request.

Funding

The study was funded in part by the Foundation "Stichting Rijvaardigheidsbewijzen Ruiter en menner (SRR)."

Conflicts of Interest

The study was funded in part by the Foundation "Stichting Rijvaardigheidsbewijzen Ruiter en menner (SRR)". While the SRR assisted in the distribution of the survey, all other decisions regarding the design, data collection, analysis, and interpretation were conducted independently by the authors.

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How to Cite

Wolframm IA, Le Belle FA, Elte Y. What is Welfare? A Qualitative Study into Perceptions of Equine Welfare of the Dutch Equestrian Community. *Int J Equine Sci* 2024;3(1):37–50.